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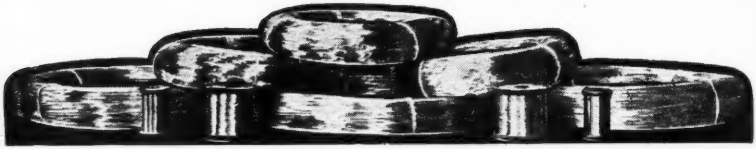

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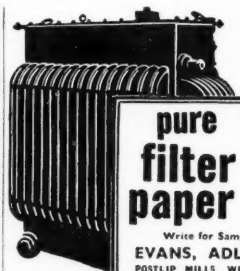

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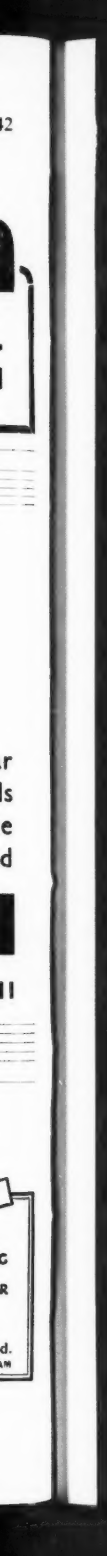

ELECTRICAL REVIEW

Volume CXXX — No. 3370

Friday, June 26, 1942

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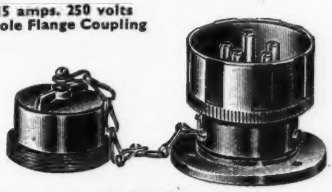

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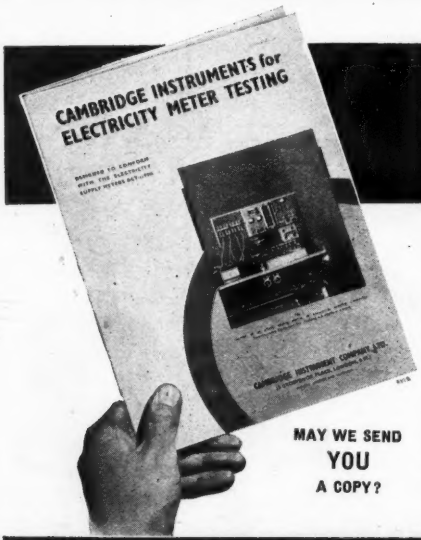

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ELECTRICAL REVIEW

THE OLDEST ELECTRICAL PAPER — ESTABLISHED 1872

Vol. CXXX. No. 3370. JUNE 26, 1942 6d. WEEKLY

Coal and Rationing

Immediate Economy Drive Imperative

THERE were wry smiles at last week's I.M.E.A. annual meeting when Major Lloyd George, the new Minister of Fuel and Power, said it had not been necessary to supply "difficult" fuel to electricity undertakings "to any substantial extent." It is, of course, very questionable whether the decrease in efficiency involved in the combustion of inferior coal eases the fuel situation, as it is intended to do, and it certainly does not reduce the amount of transport required, which is another important consideration.

The new Minister made a very favourable impression upon the representatives of municipal supply authorities, for his sincerity and determination were evident and his record at the Ministry of Food has been an excellent one. But the Minister and his Department will be judged by their future actions and particularly by their attitude towards electricity supply when it comes to "co-ordination."

Avoiding Rationing

Major Lloyd George inevitably referred to rationing and protested against the view that the Whitehall people were constantly seeking means for imposing further restrictions upon the public. Be that as it may, there is still a feeling that gas and electricity rationing will not work and that any saving must be achieved by voluntary methods—not only in the domestic sphere but in the more fruitful fields of industry and other large consuming classes.

Economy there must be if we are to avoid a rationing scheme which, by its patent impracticability, will cause endless trouble and will only effect a saving by bearing hardly and inequitably upon a large section of the people. Recent correspondence in the newspapers has unearthed a number of unforeseen drawbacks; some may be merely individual cases but many have general application. The proposed "zoning" arrangement, in particular, is most arbitrary. Even if the existence of temperature differences between Scotland and the South of England is granted the differences in the allowances appear to be fantastic.

Bars to Interchangeability

Another point relates to coal stocks. Householders were advised to lay in coal during the summer period. Some who have done so may find that they have amassed their full ration in coal alone and will not be entitled to any gas and electricity at all. It is by no means certain that everybody will get his full coal ration and to guard against the overloading of electricity undertakings the annex to the White Paper on Coal contained a paragraph limiting electricity consumption in any half-year to the level of that in the corresponding period of the previous year. This matter, however, with others, is left to the discretion of the Local Fuel Overseers, which is not a very satisfactory arrangement.

In the meantime there seems to be a lull in the economy appeal—a lull that cannot be afforded. Mr. Churchill was to have given the intensified campaign a send-

off from the B.B.C., but he has been occupied with more important matters. Only three or four months remain before the descent of winter and so the matter is becoming more urgent. The Electrical Development Association and the individual supply undertakings should be intensifying their efforts at electrical "de-development," to use a form favoured by the Civil Service. No doubt many of them are doing so but many others must be awaiting a lead.

Unsung Heroes

ALTHOUGH it may not have been entirely in order, we think that the President of the I.M.E.A. did right in allowing the chairman of the Shoreditch Electricity Committee to move his resolution commending the engineers in charge of electricity undertakings for their great work in maintaining supply in extremely difficult and dangerous circumstances. Both he and Alderman Mrs. Gregory of West Ham spoke no more than the truth when they maintained that if it had not been for those engineers and their staffs (whose work had not been properly recognised) the whole system of the country would have broken down under the strain of sustained air attack. We sincerely hope, with both speakers, that they may not experience a repetition of those gruelling times, but if they do we can be confident that they will not be beaten.

Enthusiasm for work

THE magnitude of engineering progress in the U.S.S.R. during the past couple of decades should be assessed by comparison with previous standards there. Even more remarkable than the materially productive developments has been the way in which operatives have been trained from "scratch" to their present proficiency. This appears to have been made possible by the intense interest taken by each individual in increasing output—an interest that would seem to satisfy Carlyle's dictum as to what constitutes "blessedness." In what way can such an attitude towards daily work, even though of a monotonous and routine kind, be made applicable to industrial conditions that have the different historical background of Britain? As Dr. A. P. M. Fleming in the lecture reported in this issue expressed it: The Russians may learn from us; we must learn from them.

Post-war Control

ADVOCATING the control of essential services by public boards in the House of Lords last week Lord Reith said that he did not know why the Central Electricity Board and the Electricity Commissioners should not be amalgamated. The brief answer, of course, is that their functions are entirely different; the Central Board is an authorised electricity undertaking (of a special character it is true) while the Commissioners exercise administrative and quasi-judicial functions over the whole of the electricity supply industry—functions which have been strengthened and added to during the war. The Government's reply (by Lord Portal) indicated that the future of the supply industry was under consideration by the Paymaster-General until the new Ministry of Fuel & Power got going. We hope that the industry itself will be fully consulted at every stage and that there will not be too much secrecy in the matter.

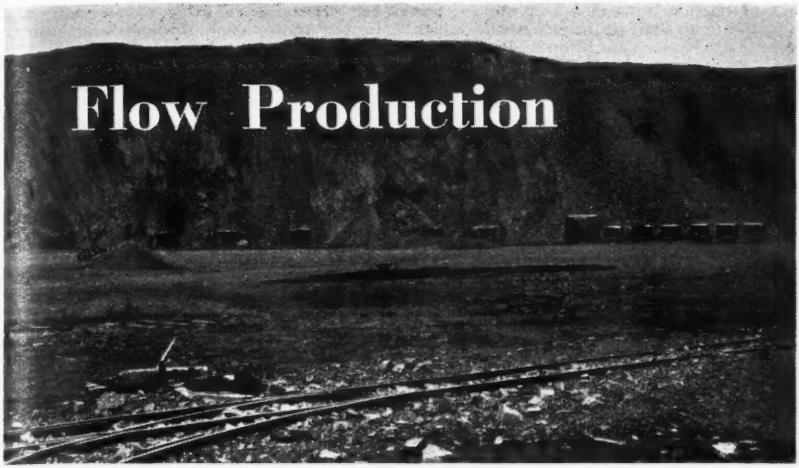
A Steep Demand

IN the face of advice from the president and secretary of the Union the A.E.U. conference at Blackpool last week passed unanimously a resolution calling for the presentation of claims for a considerable advance in wages on behalf of all members in the engineering and shipbuilding industries. How considerable was the advance was made clear by Mr. R. Openshaw, a member of the executive, who estimated the total cost of the additions at £100,000,000 a year. The secretary (Mr. F. Smith) put the weekly increase per member at 35s. to 36s. a week, but if Mr. Openshaw's figure is right the amount (calculated on the total membership of 605,000) is more like 60s. a week. Even if the case for an increase can be proved it seems impossible to take the demand seriously and it is rather an excessive bargaining counter.

Street-lighting Contracts

A FURTHER stage was reached last week in the Egham street-lighting case when the Court of Appeal reversed a High Court decision in favour of the Egham & Staines Electricity Co. The Court held that although the Lighting Restriction Order made it illegal for the company to fulfil its contract it was not protected by a *force majeure* clause. The matter is now to be taken to the Lords.

Flow Production



Red whinstone for road construction is won at the crest of Cairngryffe Hill

Modern Methods at a Scottish Quarry

IT may at first seem curious to use the term "flow production" in connection with quarrying, but the fact is that we have yet to see a better application of the principle than that at the Cairngryffe Quarry of the Lanark County Council, which has now been running long enough to have proved its worth.

The red whinstone for road construction is won at the crest of Cairngryffe Hill, and the production plant, which carries out handling, crushing, screening, grading and mixing operations, is arranged in a dead-straight flow line from this point to the roadside, a distance of about 3,000 ft. with a fall in level of about 360 ft. The line consists of seven conveyors, varying somewhat in length and gradient according to the character of the ground, arranged in covered-in gantries on steel-girder supports. Rubber belt 30 in. wide is used throughout; it travels at 120 ft. per min. at all stages. Up to now the plant has proved itself capable of handling 600 tons of stone per 8½-hour day, and the total connected power load, excluding tar heating, etc., is about 450 kW.

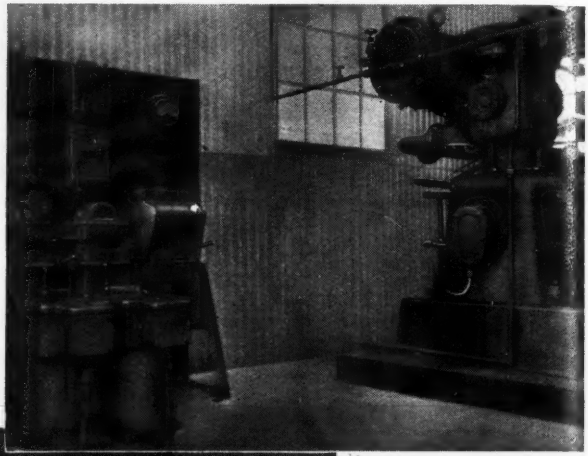
Electricity is received at 11 kV by overhead line at a point near the brow of the hill, from which it is transmitted by underground cable to a brick substation at the quarry-floor level in which it is transformed to 440 V, three-phase. This substation incorporates a main distribution room in which there is an M. & C. switchboard comprising a shallow sheet-steel busbar and apparatus cabinet. On this are mounted an 800-A incoming oil circuit-breaker, two 400-A breakers for the primary crusher and other plant at the quarry end of the production line and for the tarring and grading equipment at the delivery end of the line respectively, and a 200-A breaker for the secondary crusher and screening plant which is interposed between the second and third conveyors at about 650 ft. from the primary crusher.

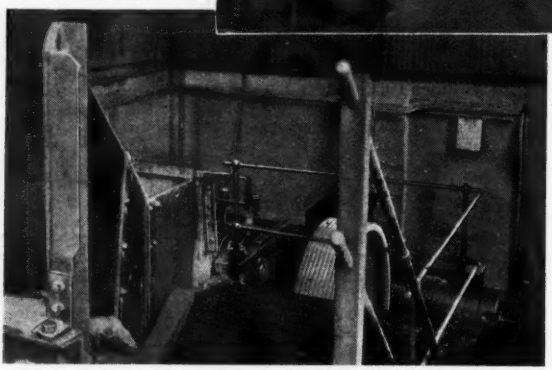
The present quarrying operations amount to the removal of the crest of the hill to a depth of 80 ft. at the maximum face depth. There is practically no overburden and removal of the stone from the face is effected mainly by tunnel blasting, the tunnels being driven by means of compressed-air jack hammers. Each tunnel is T-shaped, with a leg 40 ft. direct into the face at floor level and 25-ft. arms on either side at the innermost end of the leg. Blasting at pockets at the ends of the arms results in the loosened stone just sliding down the face. Compressed air for the jack hammers and for some drills which are also used is supplied by a 350-cu. ft. per min. compressor directly coupled to a Bruce Peebles 60-HP, 360-RPM slip-ring totally enclosed motor with an internal fan controlled by a drum-type starter and a 100-A circuit-breaker.

The loosened stone at the quarry face is loaded into 1-cu. yd. tipping bogies which are hauled by petrol locomotives to the primary crusher house where the stone is tipped into a chute feeding a 36-in. by 24-in. Broadbent jaw crusher driven by a 100-HP, 978-RPM, slip-ring ventilated Laurence, Scott motor, from which there is a 3-to-1

ratio reduction transmission by multi-V belt to the pitman shaft of the jaw crusher which operates the central jaw by an eccentric. The crusher motor is controlled by a drum starter and a 100-A oil circuit-breaker which, with the compressor motor circuit-breaker and a 250-A incoming air switch, are mounted on a switchboard in the compressor house similar in construction to the distribution switchboard in the substation. There are also on this switchboard switch-fuses and push-button contactor starters for a fan and a sump motor.

The stone is crushed to 4 to 6 in. and falls on to an inclined belt which constitutes the commencement of the flow line. The discharge end of the crusher is totally enclosed, the enclosing scheme including a shroud over the end of the belt. To this shroud is connected a trunk of the dust-removal system which incorporates the motor fan referred to. Drainage water in the crusher pit is led to a sump served by the motor-pump mentioned, the motor switch being wire-operated automatically from a float in the sump.



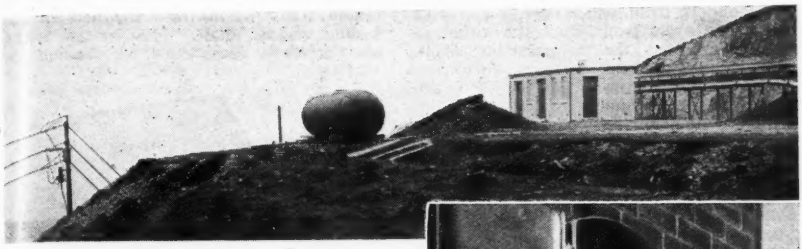


At the beginning of the flow-line the stone is tipped into a primary jaw crusher driven by a 100-HP motor (bottom right)

Compressed-air for the jack hammers is supplied by a 60-HP motor-driven compressor; starting gear for crusher and compressor on left

As is the case with all seven of the conveyors, the drive for No. 1 is at the end farthest from the quarry, where there is a 10-HP, 720-RPM Laurence, Scott squirrel-cage motor with a 5-to-1 reduction multi-V belt transmission to a countershaft, and further transmission through straight-tooth pinion gear (about 7-to-1) on to the conveyor end-drum shaft. This motor is directly but remotely operated by means of a push-button contactor in the secondary crusher house further down the line, although there is an English Electric switch for local operation if required. The stone passes from the first conveyor to the second conveyor *via* a box chute and the drive for the second conveyor at the lower end is part of a combined drive for a scalping (vibrating) screen and a dust-collecting fan. The motor is a 15-HP, squirrel-cage machine, and there is a 3-to-1 ratio reduction transmission by V-belt to a countershaft from which flat belts serve the fan and the screen, and there is transmission to the conveyor drum similar to that of the first conveyor.

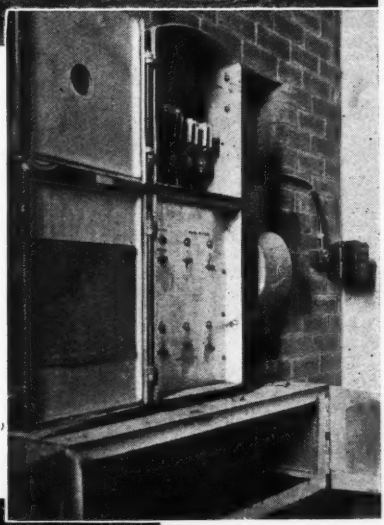
Stone from the second conveyor is passed on to the scalping screen from which the rejects are passed to either of two secondary crushers which discharge on to No. 3 conveyor. The stone passed by the screen is fed directly on to No. 3 conveyor. Each of the 30-in. by 16-in. jaw crushers is driven by a 60-HP, slip-ring motor, which has a 5-to-1 V-belt transmission to the



Underground cable connects the 11-kV line (left) to the brick substation (right)

eccentric shaft of the crusher. Each crusher motor is served by a drum starter and an oil switch, and the 15-HP motor for the screen, etc., is controlled by an Allen West star-delta starter, all these switches being mounted on a sheet-steel cabinet switchboard with a "Superior" incoming air switch and the remote push-button switch for the first conveyor.

From this point the stone is passed on in succession to the third, fourth, fifth and sixth conveyors, for each of which the driving arrangements are similar to those of the first conveyor, as already described, the 10-HP motor in each case being direct-on started by a contactor in the corresponding driving house which is remotely push-button operated from a subsidiary switch house at the bottom end of the flow-line.



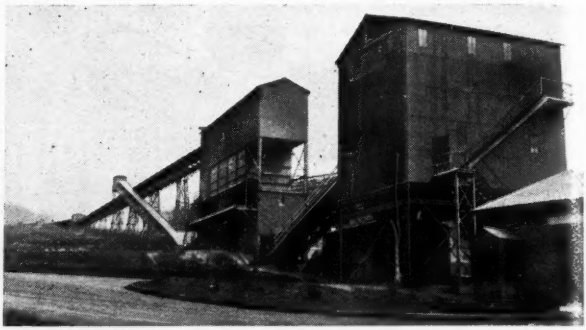
Control gear for the tar-boiler immersion-heater banks

The supply for the grading and mixing plant and the tar boiler comes from the lower distribution house

At the far end of No. 7 conveyor there is a combined 15-HP drive for the conveyor, a grading screen and a dust-collecting fan, with transmission arrangements similar to those for the earlier screen and No. 2 conveyor at the secondary crusher house. From the grading screen rejects are fed into a Kennedy gyratory vertical crusher which is driven by means of a 3-to-1 V-belt transmission between the lower pulleys below the mounting platform by a 40-HP, slip-ring motor; this is remotely operated by means of a drum-type starter which is situated in the lower switch house.

From the various stages along the grading screen different sizes of stone are fed

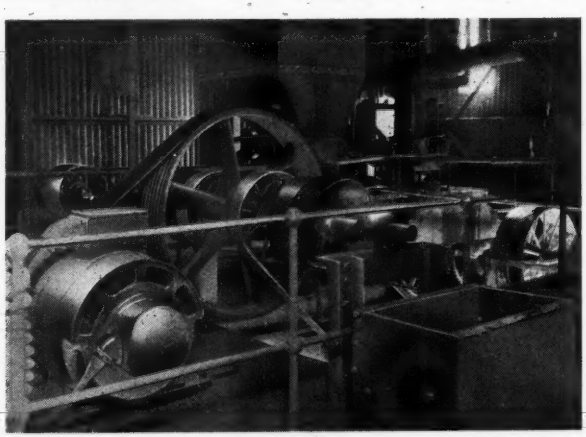
into hoppers from which lorries can take direct delivery or from which the stone can be conveyed to the tarmacadam plant. This includes an enclosed steel-plate conveyor, delivering upwards to the mixing house, which actually constitutes the stone dryer, the stone being subjected to the play of crude oil burners at the sides of the enclosure during transit. This special conveyor, which travels at about 60 ft. per minute, is driven by a 15-HP, 960-RPM squirrel-cage motor with a right-angle transmission from the motor shaft through spur and pinion gearing to a countershaft which serves directly the sprocket wheel which corresponds to the end drum of a belt conveyor.



Conveyor by-pass from the Kennedy crusher back to the main flow line

The three 15-cwt. mixers are fed with stone from the dryer at their ends, and with tar from a trough over the centre of each of them. Each mixing equipment has two sets of paddles and the three equipments are group-driven by a 60-HP, slip-ring motor with a 5-to-1 V-belt transmission to a countershaft from which there is flat-belt transmission to a countershaft on each mixer. From each mixer countershaft there is a pinion transmission to the paddle shaft at one side of the tank and at the other side there is simple pinion transmission from the first to the second paddle shaft. This motor, which also drives a compressor for feeding the crude oil to the dryer burners, has rotor-switch starting from a drum equipment in the neighbouring mixer house.

The hot binder is fed to the mixers from two 3,500-gallon boilers, each equipped with immersion heaters placed horizontally near the bottom of the boiler and having a total loading of 45 kW. The total of fifteen tubular heaters is arranged in five groups of three tubes, each group being separately phase balanced and hand switched; there is a master switch for overall operation, irrespective of the individual group switching. Beyond all this there is contactor control of the complete circuit as a whole, and the contactor is automatically operated by a thermostat which operates to ± 5 deg. F. within a range from 250 to 350 deg. F.



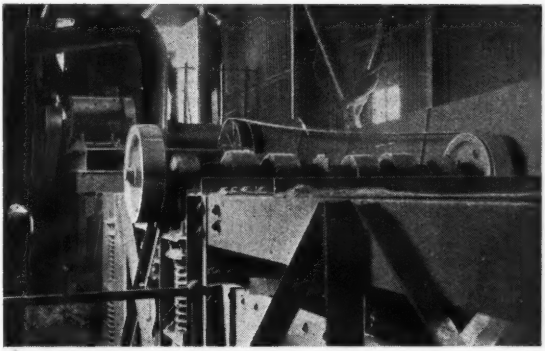
Three 15-cwt. mixers group driven by a 60-HP motor

The boilers are fed by gravity with hot binder from road vehicles and maintain it at a constant temperature. Each is equipped with a submersible pump directly driven from a vertical motor on top of the boiler, and the two pumps circulate the binder through a pipeline from which the mixer tanks are fed.

From the main flow-line near the bottom end there are two by-passes. One is from the Kennedy crusher from which an 18-in.

belt conveyor takes the product back to a point on the main line about midway along No. 7 conveyor for its return for regrading. This conveyor is served by a 7½-HP, 960-RPM motor. The other by-pass is to a bottoming hopper to which rejects from the secondary crusher can be by-passed for delivery at the larger sizes. It is driven by a 10-HP, 720-RPM motor.

The whole of the electrical equipment for the grading and mixing plant, etc., at the lower end of the flow-line, including the tar boiler, is supplied from the lower distribution house in which there is a sheet-steel cabinet switchboard similar to, but much larger than, the others referred to, which, in addition to accommodating the circuit-breakers for the various equipment circuits, also embodies the starting units for the Kennedy crusher, the grading screens, the dryer and the bottoming-dump conveyor, as well as the remote push-button controls for conveyors Nos. 3, 4, 5 and 6.



Combined 15-HP drive for the seventh conveyor, grading screen and dust-collecting fan

It will be seen that actually there are two group controls for the whole of the plant, one at the lower end for the line up to the secondary crusher house and one at the secondary crusher house for the earlier part of the line up to the primary crusher. The controls for each group of conveyor motors are interlocked for sequence operation so that any one conveyor can be started only after the earlier one is in operation, and the whole of the conveyors will automatically shut down upon the failure of any one of them.

The tar boilers, tarmacadam mixers, dryer and screens were all manufactured by the Clarmac Engineering Co., Ltd. The complete electrical and mechanical installation was erected by Edmiston Brown & Co., Ltd., to the specification of Mr. W. A. Chapman, County Road Surveyor, to whom we are indebted for giving us permission to visit the quarry.

Our thanks are due also to Mr. D. Winning, the quarry manager, for his assistance in the preparation of this article.

Control in Northern Ireland

New Powers for Ministry

THE Northern Ireland Ministry of Commerce and Production is to be given statutory powers to construct generating stations, and to acquire any station or transmission lines belonging to authorised undertakers in Northern Ireland.

A Bill which was published on June 17th confers such power on the Ministry to "ensure the provision and maintenance of essential supplies" in connection with the present national emergency. The Bill also provides that when the Ministry proposes to acquire an undertaking—generating station or transmission line—otherwise than by agreement the Ministry will give notice to the undertakers and the price to be paid will be arranged by an arbitrator. Any authorised undertaking may be so acquired except any generating station, or main transmission line belonging to any authorised undertakers being the corporation of a county borough unless with their consent. In any case, where consent is given, the acquisition will be on terms agreed between the Ministry and the undertakers.

The Ministry may delegate its powers to authorised undertakers and it will be the duty of undertakers to maintain and operate such stations, or carry them on as part of their undertakings. Authorised undertakers who are the owners of generating stations will be under the obligation to operate the stations so as to generate such quantity of electricity at such rates of output and at such times as the Ministry may think fit to direct.

The costs of the Ministry in relation to stations and lines acquired or constructed under the Act will be determined by calculating certain costs, charges and allowances in respect of the financial year. If it appears from the accounts of the Ministry that the receipts derived from the operation and maintenance in working order of any station or lines acquired by the Ministry under the Act are less than the costs of operation, the Ministry will apportion the certified deficiency among authorised electricity supply undertakers and in such proportions as it may think equitable.

The Egham Lighting Case

Council's Appeal Allowed

IN the Court of Appeal last week Lord Justice MacKinnon, Lord Clauson and Lord Justice Goddard had before them an appeal by the Egham Urban District Council from a judgment of Mr. Justice Cassels, sitting in the King's Bench Division on February 25th last, in favour of the Egham and Staines Electricity Co., Ltd., who were the plaintiffs in the action.

Mr. Havers, K.C., for the Council, said the action was brought by the plaintiffs, the Company, upon three contracts to recover seven quarterly payments for electricity amounting to £3,590. Mr. Justice Cassels gave judgment for the plaintiffs for that amount. The Company undertook to give the Council street lighting under the agreements, which were all in identical terms, but of different dates. Under the agreements the Company also undertook to provide, maintain, repair and re-place all the necessary apparatus.

Since the coming into operation of the Lighting Restriction Order, 1939, the lamps had not been used. The Company did not generate electricity but took it in bulk from another company.

The question was whether the plaintiffs, notwithstanding that the lamps had remained unused, were entitled to the full sums payable under the agreements. Counsel contended that there was a clause in the agreements to cover the contingency and that the Council was entitled to an abatement. The whole matter rested upon the construction of the agreements.

The Council agreed to pay certain quarterly sums. Clause 15 set out that the Council was entitled to certain abatements and the proviso in Clause 16 referred to occasions when the lamps were not alight. The abatement claimed by the Council exceeded the amount claimed by the Company in the action.

Counsel submitted that there had been default by the Company which brought the clause of abatement into operation. The Company claimed to escape the penalty clause and come in under Clause 15. He contended that there was an obligation on the Company to light the lamps. It was not performed and therefore there was a failure on the part of the Company which amounted to default.

The Company's Obligations

Mr. Wallington, K.C., for the Company, supported Mr. Justice Cassels' judgment and argued that the Company had been prevented from supplying electricity owing to an unavoidable cause within the meaning of the agreement. There was no duty on the Council to light the streets, but it had obtained power to do it. His submission was that the Restriction Order operated on the Council and not on the Company. The obligation of the Company was to supply the electricity.

Mr. Malone, who also appeared for the Company, argued that the Company had complied with all its obligations, so far as it could in the circumstances.

The Court, without calling upon Mr. Havers to reply, allowed the appeal with costs and entered judgment for the defendants, with costs.

Lord Justice MacKinnon in giving judgment said that the three agreements made between the parties in 1933, 1935 and 1937 were in similar terms with but a slight difference. Clause 13 provided that the Council would make certain payments to the Company in the case of unlighted lamps, during the lighting time. Clause 15 provided that no default by the Company would render it liable to damages if occasioned by strikes, etc. " or from any other unavoidable cause over which the Company has no control." What happened here was that in 1939 an Order came out making it unlawful to display lights. The result was that from then down to the time of the issue of the writ the Company was unable to switch on any of the lights in the district.

Illegal to Fulfil Contract

The question was whether this being the state of affairs the Company could sue for and recover various payments which it alleged were due to it. The Judge in the Court below held that the Company was entitled to recover the money from the Council. He (Lord Justice MacKinnon) did not agree with the learned Judge that the plaintiffs had done all they had agreed to do under the contracts. The contracts put on the Company the obligation to light the district ; it had not fulfilled the contracts because it became illegal to do so.

In these circumstances what was the effect of Clauses 13 and 15? Clause 13 was the penalty clause by which the plaintiffs had to pay over named sums for lamps not lighted. Clause 15 stated that there would be no default in the case of strikes, etc. " or from any other unavoidable cause over which the Company has no control." His Lordship thought the supply of electricity was curtailed and abolished and extinguished and as a result of that the obligation to make payments under agreements came to an end. The result was that the appeal succeeded and judgment must be entered for the Council with costs.

Lord Clauson and Lord Justice Goddard agreed.

Mr. Wallington asked for leave to appeal against the decision to the House of Lords and the Court granted this.

Industrial War Savings Schemes

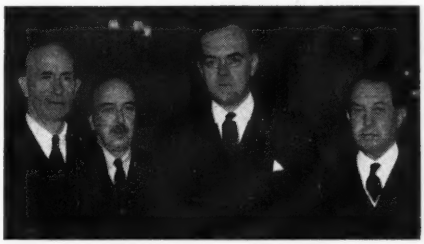
MR. Oliver Lyttelton, Minister of Production, has addressed an appeal to all employers and workers in industry to back up a campaign for increasing war savings in works and factories. Speakers are to visit factories and cinema vans and gramophone records are being used to strengthen the appeal. A pamphlet is being circulated in which methods of organising savings groups are outlined. This task should be in the hands of the works committee and in every large works or group of factories there should be a savings organiser with no other duties and with adequate clerical assistance.

I.M.E.A. Annual Meeting

Minister of Fuel Addresses Members

THE annual general meeting of the Incorporated Municipal Electrical Association was held at Grosvenor House, London, W.1, on June 18th. Mr. J. W. J. Townley (West Ham), president, who was in the chair, said that as soon as the Council heard of the appointment of Major the Rt. Hon. Gwilym Lloyd George, M.P., as head of the new Ministry of Fuel and Power to take control of the electricity, gas, coal and oil industries, it invited the new Minister to attend the meeting and make the acquaintance of the Association, and Major Lloyd George had consented.

Major Lloyd George arrived soon afterwards, accompanied by Lord Hyndley, and the president, in calling upon him to speak, assured him of the Association's goodwill and co-operation in all the problems he would have to face regarding electricity supply. At the same time, he cordially welcomed Lord Hyndley and said that it was due to the latter's very hard work at the Mines Department that the electricity supply undertakings of the country had obtained essential supplies of fuel during the recent very difficult times.



Mr. F. Newey (Lincoln, the new President) with Lord Hyndley (Controller-General of Mines), Major G. Lloyd George (Minister of Fuel and Power) and Mr. E. E. Hoadley (Maidstone)

Major Lloyd George said it was a matter of very great pleasure to him that the first public engagement he had undertaken as the Minister of Fuel and Power was to meet the representatives of the municipal electricity supply undertakings which played such an important part in the supply of electricity to the country.

The first job he undertook after the last war was with an electricity undertaking negotiating wayleaves. It was great fun going to farmers and telling them that they would get a " bob a leg " for towers in the middle of their fields, and then when he was asked whether the farmers would be able to get all the electricity they wanted he had to tell them they would get none at all. He hoped that whoever had that job in the future would not have to say " No " to any of the rural districts of the country which needed a supply.

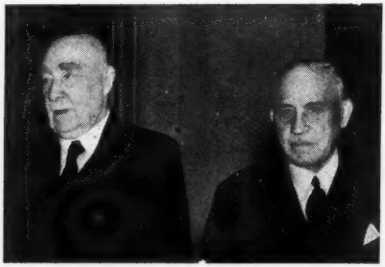
He was well aware of the difficult task that had been undertaken, but it was not the first difficulty he had had to face in this war. He had been at the Ministry of Food and supposed he could truthfully say he had jumped out of the frying pan into the fire.

At the moment the coal situation was a matter of serious concern; indeed, it had led to the formation of the new Ministry. Our output of coal had not kept pace with the demand, and we had kept going only by eating into our stocks and by using inferior fuels. That could not go on indefinitely; we must either increase production or decrease consumption, but in decreasing consumption nothing must be done in any way to interfere with the vital war effort or

The platform with the President (Mr. J. W. J. Townley) addressing the delegates

with essential services. Increased production was being pursued now along the lines of the White Paper which had been approved by Parliament last week, but many of these measures would not bring quick results. We might have to ration. Nobody wanted rationing. Nevertheless, the Government had to be ready to do so should the need arise. In the meantime, the public would have to make every possible economy.

He had been informed that the electrical industry had not been called upon to date, to any substantial extent, to make use of inferior or difficult fuels, but we could only meet the coal requirements of industry if more use were made of these difficult fuels. There was in the electricity supply industry a large amount of skill and ingenuity, and there was also something else, a great determination to see the present war through to a victorious conclusion.



Ald. F. W. Raikes and Mr. A. Nichols Moore (Newport, Mon.)

Alderman Sir Percival Bower (Birmingham) proposed a vote of thanks to Major Lloyd George; and said that the electricity supply industry congratulated the Government on setting up the new Ministry. The idea had been bandied about a good deal in the past and at last, come ill or woe, they had a Ministry

Councillor Selwyn Jones (Newton-le-Willows) and Mr. C. W. Salt (Carlisle)

of Fuel and Power that they could go to and a Minister who would receive courteously and, indeed, favourably, any representations it might be necessary for the industry to make. Of the Ministries which had had to be dealt with during the war, it could truthfully be said that none had been more successful than the Ministry with which Major Lloyd George had been so long associated. He hoped that the efforts Major Lloyd George was making to bring about a correction of the difficult and almost dangerous coal situation would meet with the reward everyone hoped.

Major Lloyd George, acknowledging the vote of thanks, said he would welcome constructive criticism. He took the opportunity of thanking the president of the Association for the help he had already given on the Public Utilities Committee.

After Major Lloyd George had left, the business of the annual general meeting was proceeded with. In moving the adoption of the Council's report (reviewed in our last issue) the president said that since the report was printed, the possibility of a scheme for equating excess transport costs had been gone into, and the Association had informed the Secretary for Mines that it could not recommend such a scheme.

Mr. Townley made an appreciative reference to the late Mr. H. Faraday Proctor a founder member, who had served as president, hon. secretary and hon. treasurer of the Association. He also mentioned the value to the Association of live Centres throughout the country.

Regarding the resolution passed at the last annual general meeting asking the Central Electricity Board for an alternative form of tariff, he expressed the opinion that the object of the resolution had been achieved in that the Board had promised not to introduce any new tariff or alter the existing ones without first consulting the Association and others interested.

Mr. F. Newey (Lincoln) seconded the adoption of the report and there was discussion upon a number of items. Mr. E. A. Logan (Erith), referring to the annex to the White Paper on Coal, said that paragraph 2 stated that gas, electricity, coal and oil were interchangeable on a points basis, whereas in paragraph 10 it was stated that during any half-year, the consumption of electricity in any household must not exceed the consumption in the corresponding six months of the previous year, except with the consent of the Local Fuel Overseer. Why was electricity thus singled out for special mention?

Mr. J. Mould (chairman of the National Gas and Electricity Committee) said the subject matter of the annex had not been submitted to the Committee and care had been taken to make it known to Members of Parliament that the Committee did not accept responsibility for it. As regards paragraph 2, it had been impressed upon the Minister that

if coal, gas, electricity and oil were made interchangeable there might be serious repercussions on the electricity supply industry if, for example, the coal industry was unable to meet the demands upon it. Accordingly paragraph 10 had been inserted to prevent an impossible demand being made upon the industry.

Councillor J. Minto (Leicester), chairman, National Gas and Mr. J. Mould (Leicester, Electricity Committee) and Mr. H. C. Lamb (Manchester)

A suggestion was made by a speaker that instead of the proposed S.W. England and S. Wales Centre there should be two Centres, having regard to the importance of the S.W. England area itself, and the President promised this suggestion should be considered.

Mr. C. G. Richards (Port Talbot) asked if the Council had any policy with regard to grid tariffs as part of the Association's post-war planning arrangements. The President said the policy of the Council was the obvious one of securing the best terms possible under any given set of conditions for bulk supply undertakers.

Mr. J. A. Sumner (Norwich) referred to the Central Board's proposals for the preservation of existing conditions of supply and said that he thought "charges" should be read for "conditions." How was it possible to have "existing conditions of supply" if a station was completely destroyed? It seemed to be an arrangement by the C.E.B. to preserve existing "charges" to selected station owners. How far would any arrangement which the Association might make be binding upon individual members? The paragraph relating to the reimbursement of the Board for increased costs incurred on account of lower thermal efficiency was designed to ensure that the undertakings should meet the increased charges caused by the war. He did not think that the two items were reciprocal. If the I.M.E.A. were to suggest an equated charge to meet the Board's increased expenses, would that annual charge apply equally to coal supplies?

Mr. J. Mould, as chairman of the Generation Committee, assured members that nothing would be done to prejudice them and they would be fully advised beforehand. It was not possible to discuss this matter in detail at the present time and the time must come when the Council would have to call the members together and report what they had been doing, but they would be in no way committed beforehand. The position, briefly, was that as a result of the war, the C.E.B. felt there was a possibility in the future that it might have a deficit on its trading account, although up to the present it was on

Mr. F. W. Purse (London J.E.A.) with Ald. W. D. Newling (East Ham) and Ald. Mrs. Gregory (West Ham)

Mr. A. E. McKenzie (Wimbledon), Mr. W R. Elliott (East Ham), Ald. W. Walker (Manchester) and Mr. H. Strange (Manchester)

an even keel. It would then have to tell the Government that it was in difficulties, for instance, in meeting the interest on its debt and the Government would have to decide what action should be taken. The Board might have decided on action without consulting the industry, but it it had very wisely invited the supply industry to discuss the position. He suggested that steps be taken to call the owners of selected stations together or that there should be an extraordinary general meeting of the Association to discuss the position before any agreement was arrived at with the Central Board.

Mr. F. Newey with Mr. J. W. J. Townley whom he succeeds as President

Mr. J. W. Williams (Wrexham) asked if the Government had any measures before it for the stabilisation of the price of coal. In his case there had been an increase from 15s. to 32s. per ton. The president said that so far there had been no assurance that there would be any stabilisation or levelling of coal prices. He understood that consideration was being given to the price structure, but that was not quite the same thing. It might mean a higher price for some fuels and a lower price for others.

Alderman Newling (East Ham) complained that there was nothing in the Council's report with regard to the nationalisation of the electricity supply industry, and recalled that a resolution on that matter, passed at a meeting of the South Eastern Centre, had been sent to the Council with a request that it should be discussed.

The president said that it would be highly unsatisfactory to deal with such a matter at the annual meeting. It was open to those interested to take the necessary steps to call an extraordinary general meeting for the purpose.

Mr. S. J. C. Ellis (Canterbury) spoke of the mutual aid schemes which had been organised by E.D.A., and said he had recently benefited very greatly by these plans.

The report was then carried unanimously, as were the accounts.

The president announced that the Council's nomination of Mr. F. Newey (city electrical engineer, Lincoln) not having been contested, Mr. Newey was declared elected president for the ensuing year. He then invested Mr. Newey with the chain of office. Mr. Newey expressed his appreciation of the honour conferred upon him, and moved a cordial vote of thanks to Mr. Townley for his services as president during the past year—which was accorded with hearty acclamation.

Alderman J. W. Raymond (chairman, Lincoln) expressed the appreciation of his Committee and the Lincoln Corporation at the election of Mr. Newey as president. He did not contemplate that it would be possible to hold a full convention at Lincoln next year, but he hoped that Mr. Newey would at all events invite the members of the Council to Lincoln, when they would be given a hearty Lincolnshire welcome.

The President announced the election of Mr. W. N. C. Clinch (Brighton) as vice-president for the ensuing year and Mr. Clinch briefly acknowledged the honour done to him.

A telegram from Mr. J. E. Edgcombe—a founder member of the Association—sending good wishes for a successful meeting, was then read. He regretted his inability to be present, recalling that he was born in 1865. Mr. Townley said that he would thank Mr. Edgcombe on behalf of the Association.

Appreciation of Engineers

The meeting closed with an expression of thanks and appreciation—on the motion of Councillor Hebden (Shoreditch) — of the work of the electricity supply engineers throughout the country during the period of heavy and sustained air attacks.

Mr. J. W. Simpson (Secretary, I.M.E.A.) and Mr. W. N. C. Clinch (Brighton), Vice-President

Councillor Hebden, in a lively speech, complained that the wonderful efforts of these engineers in keeping the supply going in extremely difficult circumstances had not been adequately recognised.

Alderman Mrs. E. Gregory (West Ham) seconded the vote of thanks, saying that the engineers had saved the country's sanity, and it was passed with hearty enthusiasm.

Engineering in Russia

Remarkable Achievements in a Few Years

AT a meeting of the Anglo-Soviet Public Relations Association which was held at the Royal Institution, W.1, on June 17th, and presided over by Mr. J. R. Beard, an account was given by Dr. A. P. M. Fleming of recent engineering developments in the U.S.S.R. In his several visits to that immense country, he had had opportunities of seeing how a large proportion of a people of 170 millions (many of them past their youth), once generally illiterate and engaged in agriculture, had within a comparatively short space of time acquired general and technical education and achieved great proficiency in engineering.

It was realised that in order to attain a higher standard of national life the provision of ample power for industry would be necessary. Machinery was first of all imported. In the next stage foreign experts were introduced to give instruction and Russian engineers also were sent abroad to learn. In the third stage the country became largely self-sufficient, except with regard to the manufacture of machine tools and special equipment.

Surveys of national resources east of the Urals showed by the end of 1927 that their value exceeded expectations. The first five-year plan had as its object the building-up of the heavy industries, in which metallurgy and the production of alloy steels figure prominently. During his visit in 1931 Dr. Fleming was especially interested in the turbine works at Kharkov and Leningrad, the former the largest of the kind he had seen and one of the best laid out, and in the large factories for every branch of general electrical work in Moscow where the internal transport and the lighting were most noteworthy.

Two Years' Improvement

The aim of the second five-year plan (1935) was to establish the lighter engineering side. In visits to the same works and power stations as he had seen two years before he observed a large number of improvements, largely based on metallurgical progress, although there seemed to be a tendency to pay undue regard to the merit of size. He noticed a greater degree of decentralisation of control and also a greater proportion of home-built generating plant in commission. He found a greater zest for research than in any other country, every well-equipped works possessing its laboratory.

In 1938 he was once more afforded every facility by the authorities for ascertaining the progress that had been made, but the third five-year programme was overshadowed by the heavy burden of national defence. The electrical output for that year was about 40,000 million kWh, one-third of which was derived from peat which had been the subject of a vast amount of original research. Coal, water, oil and wind were also used in the production of electricity. The largest wind plant he saw was a 200-kW unit at Sebastopol.

The construction for the Dnieper hydro-electric scheme was put in hand in 1927 for an installed capacity of 568,000 kW, comprising 77,500-kVA sets. At the Thermo-Technical Institute of Moscow the most elevated steam conditions in combination anywhere, viz. 1,800 lb. per sq. in. and 920 deg. F, were in use, the turbine being of British make. Especial skill had been shown in the transport of material and plant.

There appeared to be scope for high-voltage DC transmission in view of the distances involved, but nothing had so far been done in this way. Domestic electrification had not been greatly developed, except in large centres of population, and the standard of life generally had not yet caught up with engineering achievements.

Criticism Welcomed

Dr. Fleming had found Russian engineers both self-critical and anxious to receive criticism from outside. His own view was that the leading men were first-class, but that those in subordinate positions were generally not equal in proficiency to the best to be found in countries with longer experience of industrial conditions. There was often a tendency for brilliantly conceived ideas to be worked out to a certain point and then, diffidently, handed over to committees to be carried to a conclusion. The committee system also held up work in other ways. Finely finished tools and equipment were often roughly handled, and there was some waste due to the speed of working in the drive for increased output.

Any such deficiencies, he believed, were only in the nature of "teething troubles," due to the rapidity with which men and women had been recruited from other occupations. Given the inherent mechanical aptitude shown together with the high level of imagination and intelligence and an enthusiasm for study and hard work which was finding an outlet after generations of frustration, he had seen no defects that time and experience would not rectify.

Indeed, the achievements on the human side of engineering were even more notable than on the material. They would have been great if they had taken a century instead of less than a generation to accomplish.

PARLIAMENTARY NEWS

By our Special Reporter

Minimum-Payment Contracts

IN the House of Commons last week, Major Peto asked the Minister of Fuel and Power whether his attention had been called to the conditions which were contained in many contracts between suppliers and consumers of electricity which insisted that the consumer must take a minimum amount of electricity per annum; and whether in view of the vital necessity of reducing consumption, he would take steps to arrange for such contracts to be modified during the war period.

Major Lloyd George said he assumed that his hon. friend was referring to cases in which the supply undertaking, in view of the capital expenditure involved in providing a supply of electricity, had asked the consumer to guarantee to take or pay for a minimum number of units per annum for a period of years in order to ensure to the supply authority a minimum revenue to meet the capital and other charges involved. If, as a result of economies in consumption owing to present conditions, a consumer did not consume the guaranteed amount, he should get in touch with the supply authority and ask it to consider some revision of the contract. He was informed that the supply authorities were ready to consider particular cases sympathetically on their merits.

Asked if he would lend his influence where that sympathetic consideration was not given, Major Lloyd George said he would be very happy to look into it.

Radio Valve Shortage

Sir William Davison asked the President of the Board of Trade whether he was aware that there had been no improvement in the shortage of wireless valves, chiefly rectifier valves, which was holding up the repair of thousands of wireless sets often for many months; and whether immediate steps would be taken to deal with this matter in view of the undesirability of large numbers of the public being cut off from wireless announcements.

Mr. Dalton said he was well aware of the importance of securing an increase in the supply of wireless valves for civilian use. Short of interfering with the needs of the Services, everything possible was being done to release valves of British manufacture and to obtain supplies from the United States.

Control of Public Services

On June 17th, in the House of Lords, Lord Reith asked if the Government was giving immediate attention to the future constitution, control and management of the essential public services. Referring to electricity, he said he had never been able to see why the Central Board and the Commissioners should not be amalgamated. He would have them given rights and powers over distribution with this object in view, that over the whole country there should be one uniform price for electricity, with consequent benefit to planning, as, for instance, in the location of industry.

Lord Portal, the Minister of Works and Buildings, said that the Paymaster-General was dealing in the first instance with plans for electricity after the war until the Ministry of Fuel and Power got into its stride. The Paymaster-General would in due course report to the Ministry of Fuel and Power. He was examining the reorganisation of electricity from these main points of view:—(1) to secure a better diversity of load; (2) to secure a greater standardisation of voltage; (3) to work towards a uniformity of charge throughout the country; (4) to adopt a common policy with regard to development; and (5) to put the best engineering advice at the disposal of all distributors. The question of a more equitable rate for electricity was one of the many factors that would have to come into consideration in conjunction with the question of the location of industry in the future. Even before the war this question of electricity charges and also the question of voltage were taken into account when plans for locating an industry were being considered.

Ministry of Works and Planning

Later in the same session Lord Portal moved the second reading of the Minister of Works and Planning Bill. This provides for the setting up of the new Ministry and the transfer to it of the functions of the Ministry of Works and Buildings, the Commissioners of Works and certain duties of the Ministry of Health.

Lord Portal said that the Bill was the first step in carrying out the Government's policy of securing the right use of the land of the country for all purposes. For this, existing planning powers were inadequate and it would be necessary to introduce legislation substantially amending, strengthening and extending the present law.

Before this could be proceeded with it would be essential to have the final report of Mr. Justice Uthwatt's Committee and the report of Lord Justice Scott's Committee which were nearly completed.

The Bill was accorded a second reading.

Soft Solder

THE war-emergency revision of BS.219, whereby soft solders have been restricted to five grades, was undertaken at the request of the Non-ferrous Metals Control in order to conserve supplies of tin. The specification is accompanied by a memorandum urging the choice of such alternatives as welding instead of soldering and protective varnish in place of tinning, or silver-lead substitutes. When soldering is essential the dipping baths should not contain more than 20 per cent. of tin, while the reclamation of scrap metal from dross must be encouraged.

Copies of the specification are obtainable from the British Standards Institution, 28, Victoria Street, London, S.W.1, for 2s. 3d. each, post free.

CORRESPONDENCE

Letters should bear the writers' names and addresses, not necessarily for publication. Responsibility cannot be accepted for correspondents' opinions.

Institution Membership

READING your Editorial in the issue of May 15th on the work of the Institution of Electrical Engineers reminded me that some of us old hands have had rather a raw deal. For example, it is nearly forty years since I commenced as a pupil in the engineering business, specialising in mill and factory electrification, gaining experience all over the country. The 1914-18 war found me in the engineering section of one of the services where I spent nearly four years. This over, I again went into mill and factory work.

For the last twenty years I have been chief electrical engineer of what is now the largest works of its kind in the British Empire and during this period I have spent on their behalf upwards of half a million pounds in the electrical industry. I have acted as consultant to my company, prepared all lay-outs and specifications, and now have a plant with a connected load of 40,000 HP generating and using a hundred million kWh per annum.

Thinking some years ago I would like to become a member of the Institution I made application to the secretary, but was informed that I must pass an examination or write a thesis. Being on the wrong side of forty I had neither the time nor inclination for examinations. With regard to a thesis, since my directors would not permit any reference to their plant, I was unable to put forward a thesis that was acceptable to the Institution with the result I was not even made an associate member.

Since my directors show their appreciation of my services by paying me a comfortable four-figure salary I stand to gain nothing from the Institution except the benefit of its valued discussions.

Having regard to my work and experience over a period of nearly forty years I think a little more consideration is due to me and those in similar circumstances.

MIDLANDS.

Conditions at Bingley

IT would appear from the impressive schedule which Mr. O. G. Cook puts forward in his letter in your issue of June 12th that the life of the staff under his democratic Council must be one of unalloyed bliss.

These brighter colours, however, are somewhat dimmed by the last paragraph of his letter. The National Joint Board is as democratic an institution as the National Joint Industrial Council, the Whitley Councils or his "Joint Consultative Committee." It would be interesting, therefore, if Mr. Cook could give the reason why his Council's "desire to negotiate on democratic lines" appears to desert it when it is dealing with the National Joint Board.

Basingstoke. R. J. HARLEY, B.Sc.

Production and Export

IN his article Mr. Sills argues that the future of the industry rests on the expansion of large firms. I must refute certain of his allegations.

It is untrue that development is carried on by large firms and small firms must needs be followers. The first large hydro-electric scheme in this country was put down by a small firm with not more than 1,000 employees. The plain totally-enclosed and the steel-clad rolling mill auxiliary motors were first introduced into this country by the same firm. The totally enclosed fan-cooled motor was introduced by a yet smaller firm. The acknowledged leaders in motor control gear are quite small firms and, finally, inverted vertical isolating horizontal draw-out switchgear which undoubtedly represents the high-water mark of high-voltage switchgear design has been evolved and is marketed by yet another small firm.

As regards export trade, in 1938 some 65 per cent. of the total trade was done by firms having 200 employees or under.

That the large firm of necessity gives a better training is an equally misleading statement. In a large firm one is, in general, compelled to specialise, while in a smaller firm each technical member of the staff of necessity must cover a much wider range of activities and is thus given more opportunity to develop his capacity and experience. Further, he is much more conscious of the firm as a whole, leading again to a much higher appreciation of the problems involved.

While it is true that in the past it has been possible to draw unfavourable comparisons between the smaller and larger firms as regards amenities and working conditions, this is not a necessity and can be rectified very easily, as has been done in many instances. On the other hand, working in a large firm, particularly for the technical staff, is rather a grim business since one is at the mercy of forces quite beyond the access of each individual and in most instances the individual is to the person taking the ultimate decision just one among a number of ciphers. In a smaller firm much more consideration must be given to each separate individual.

Similarly, the higher management become persons and not remote abstractions to be feared, and therefore hated or just ignored as manifestations of nature one cannot guard against. The difficulty so far as pensions are concerned can be and is overcome by the help of insurance companies.

The statement that the larger firm is better able to secure large contracts is tied up with the financial system in force before this war, which has been so severely criticised by the Association of British Chambers of Commerce in its report on post-war industrial reconstruction. It is to be hoped that the evils and absurdities of this financial system will be rectified and amended. Even so, under pre-war conditions firms with modest capital were able to secure large composite contracts in the teeth of the world competition which Mr. Sills so strongly stresses in his article.

While one can but agree that the whole tendency in recent years has been to extinguish the small and medium firms, this is very wrong and ought to be remedied since the ultimate development of any industry is dependent upon the initiative of individuals, which is given freer play in a smaller firm. The present tendency towards industrial dictatorship by one firm is hardly compatible with our present conception of democracy.

It is true that small firms are unable to finance such a large undertaking as a high-power short-circuit testing station or a comprehensive research department, but there is no inherent objection to their being run as national institutions supported by subscriptions from the firms making use of their facilities. There are grounds for believing that the development of ultra-high rupturing capacity switchgear necessitating such stations is just a ramp as the problem presented by the use of large blocks of power is solvable in other ways.

I would ask Mr. Sills to read " Principles of Liberty," written by a brother engineer of sound educational and professional abilities.

Edinburgh. N. V. PESTEREFF.

FEW if any of the particular arguments advanced by Mr. Sills for an increasing trustification of the electrical industry after the war bear close examination. This has already been shown by Mr. T. A. Long's letter in your issue of June 12th, and is implied by the frankly non-committal nature of your editorial accompanying the article in question. For my part, I am concerned rather with the general outlook that colours the whole of Mr. Sills' special pleading on behalf of monopolies under the control of private enterprise.

The self-same tone is to be discerned in the recent F.B.I. report which is, however, far more discreet in its advocacy of monopoly and finds itself compelled to make some concession to the force of prevailing ideas. " The future organisation of industry should be decided by the industrialists," says the report, " *always subject to the overriding principle that it must be in the national interest*" (my italics). Mr. Sills, too, in his last paragraph makes a not very convincing attempt to catch up with the spirit of the times when he says at the end of his article that his views " do not conflict with the Atlantic Charter, or any formula arrived at between nations for international trade."

It is fairly evident that the F.B.I. really looks forward to the future as a continuation of the past, notwithstanding its careful use of the soft pedal. But Mr. Sills, with less experience in composition perhaps, blandly writes *fortissimo* on every page ! In neither case is any real change envisaged in the existing worker-manager-shareholder relationship.

One cannot possibly contradict the tenets of Mr. Sills in the course of a letter in your columns. One can only hint that we are fighting to-day in order to build a world in which the disastrous competition engendered by the growth of privately-owned and controlled monopolies will be replaced by a co-operation which places the national interest, that is, the common good, first and foremost, instead of relegating it to the position of a mere " overriding principle." If Mr. Sills wants to keep abreast of the best industrial thinking on the subject of his article I would suggest he makes a start with Mr. Samuel Courtauld's contribution to the April issue of the *Economic Journal.*

Hurlingham, S.W.6. H. RISSIK.

Reorganisation of Electricity Supply

WE know that a goodly number of Ministers have in the past been concerned with electricity supply, and that recently there has been a further change in supervision, but it is certainly new to me, and maybe to others, that the Paymaster-General (according to Lord Portal, speaking in the House of Lords) is to play an important part in the future of the industry.

Why he should be charged with planning the reorganisation of electricity supply, standardisation of voltages, etc., is beyond my comprehension.

London, E.13. G. V. HARRAP.

[This question has been raised by others. Lord Portal explained that " the Paymaster-General is dealing in the first instance with electricity, until the Ministry of Fuel and Power gets into its stride." Later in his speech he said that the Paymaster-General was looking into the reorganisation of electricity and would report in due course to the Ministry of Fuel and Power (*vide* " Parliamentary News " elsewhere in this issue). It may be worth noting that Lord Portal stated that the gas industry had been invited to consider its own reconstruction problems.—*Eds., Elec. Rev.*]

PERSONAL and SOCIAL

News of Men and Women of the Industry

THE annual meeting of the Electrical Industries Benevolent Association is to be held on July 8th at 2, Savoy Hill, W.C.2. **Mr. E. E. Hoadley,** borough electrical engineer of Maidstone, has been nominated to succeed **Mr. P. V. Hunter** (Callender's) as president for 1942–43.

Mr. J. Innes, B.Sc., M.I.E.E., who as reported in our last issue was appointed a Companion of the Order of the Bath in the Birthday Honours List, is Director of G.P.O. Telecommunications and has been "loaned" to the Mines Department where he holds the position of Deputy Controller-General. He was educated at the Royal High School and Heriot Watt College, Edinburgh, and was trained as a civil engineer. He entered the Post Office Engineering Department in 1913 and for most of his earlier years was engaged on telegraph and telephone engineering in the field, including a period of service on communications required by the Admiralty in the North of Scotland, Orkney and Shetland, during the last war. Subsequently he returned to Edinburgh where he took charge of the work of converting the Edinburgh telephone system to automatic operation.

Mr. J. Innes

In 1929, Mr. Innes was lent to the South African Government as an adviser on automatic telephone systems and was responsible for the systems installed in Johannesburg and the Cape Peninsula. He went to the United States in 1933 as a member of a special mission on communications and has visited Germany and Poland in a similar capacity. Later, as assistant engineer-in-chief, he was engaged on the technical development of the telephone system in this country. In 1936 he was transferred to administrative duties as assistant secretary responsible for the administration of the telephone service. He became principal assistant secretary early in 1939 and Director of Telecommunications and a member of the Post Office Board in 1940.

Leading Aircraftman J. H. Whitehorn, who before joining the R.A.F. was with the London J.E.A., has been awarded the British Empire Medal for gallantry while acting as a despatch rider in Malta.

No nominations having been received other than those already proposed, **Mr. R. Grierson** has been elected chairman of the Installations Section of the Institution of Electrical Engineers, **Mr. E. H. Miller,** chairman of the Meter and Instrument Section, **Mr. P. E. Rycroft,** chairman of the Transmission Section and **Dr. R. L. Smith Rose,** chairman of the Wireless Section.

The committee of the Hampshire Sub-Centre of the I.E.E. has nominated **Mr. H. H. Sennett** for the position of chairman for the forthcoming session and **Messrs. A. G. Hiscock** and **J. R. Harding** as vice-chairmen.

Over 100 workers of Burnley Corporation Electricity Department met recently for the presentation of a canteen of cutlery to **Mr. J. E. Starkie,** who has retired after thirty-six years as electrical engineer and manager. Mr. T. B. Nutter, the new engineer, making the presentation, recalled the technical changes which had taken place since Mr. Starkie first joined the Department forty-one years ago. Mr. Starkie, in reply, eulogised the technical staff, with whom, he said, there had never been a breach of cordial relations.

At the end of the current year **Mr. Cecil Bentham,** M.Inst.C.E., is relinquishing the position of managing director of Henry Simon, Ltd., which he has held since 1926, but will continue as chairman of the company. Mr. Bentham hopes to be able to devote more attention to matters arising from the changing industrial and commercial conditions.

Mr. J. G. Leng retired from the position of power station superintendent in the Harrogate Electricity Department on March 31st, after forty-one years service. At a meeting of the staff on June 5th, he was presented with a gold watch by the borough electrical engineer, Mr. A. Kelso. The opportunity was taken of welcoming his successor, **Mr. R. Mitchell.**

In addition to the appointment of Mr. T. H. Martin-Harvey as deputy chairman of British Insulated Cables, Ltd., and of Mr. B. Welbourn as a director, reported in our last issue, **Sir Eugene Ramsden,** M.P., has joined the board The following appointments have also been made :—Mr. D. W. Aldridge, executive manager (works) ; Mr. F. Waine, executive manager (commercial); and Mr. W. H. McFadzean, executive manager (financial).

Mr. D. Llewellyn, of the Quasi-Arc Co., Ltd., has been elected president of the Birmingham Metallurgical Society.

On his retirement from the position of chief electrician to the Metropolitan Water Board at Hampton **Mr. H. H. Hill** has received a presentation from his colleagues. He has been in the service of the Board since its formation forty years ago.

Falkirk Corporation Electricity Committee has agreed to raise the position of station superintendent held by **Mr. J. McNab,** as suggested by Electrical Power Engineers' Association, from grade 4 to grade 3, class "E." This involves an increase in salary from £476 to £535, rising to £548 at the end of four years.

Mr. W. E. Richardson, general manager of the Aberdare Electricity and Transport Department, has been granted an increase in salary of £100 per annum.

At its last meeting the Board of Management of the British Radio Valve Manufacturers' Association elected **Mr. J. W. Ridgeway,** manager of the Radio Division of the Edison Swan Electric

Co., Ltd., to be chairman of the Association as from July 1st. Mr. Ridgeway retains the chairmanship of the Committee on Production.

I.M.E.A. Council.—The result of the ballot for members of the Council of the Incorporated Municipal Electrical Association announced at last week's meeting was as follows :—

Group A.—Local Authority Member : Councillor A. E. Stabler (Wrexham) ; Engineer Members : Messrs. R. Birt (Ealing) and O. G. Cook (Bingley). *Group B.*—Local Authority Members : Aldermen C. A. Critchley (Blackburn) and W. E. Sowter (Bedford) ; Engineer Members : Messrs. E. E. Hoadley (Maidstone) and B. Handley (Portsmouth). *Group C.*—Local Authority Member : Alderman A. Critchley (Liverpool) ; Engineer Members: Messrs. F. Forrest (Birmingham) and A. J. Newman (Bristol).

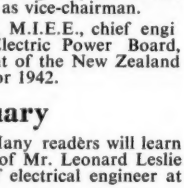
Sir Allan Gordon-Smith has joined the boards of Electric & Musical Industries, Ltd., and its operating companies. He is managing director of S. Smith & Sons (Motor Accessories), Ltd., and its subsidiaries.

Mr. C. Culmer Hodges (St. Austell & District E.S. Co., Ltd.), has been nominated for the position of chairman of the Western Centre of the I.E.E. and **Mr. J. Morgan** (Post Office Engineering Department) as vice-chairman.

Mr. A. O. Glasse, M.C., M.I.E.E., chief engineer to the Auckland Electric Power Board, has been elected president of the New Zealand Institution of Engineers for 1942.

Obituary

Mr. L. L. Robinson.—Many readers will learn with regret of the death of Mr. Leonard Leslie Robinson who was chief electrical engineer at Hackney for about thirty-three years. Mr. Robinson was born at Tunbridge Wells in 1873 and was educated at Tonbridge School and the Central Technical College.



The late Mr. L. L. Robinson

His first position was with the City of London Electric Lighting Co. with whom he was engaged in distribution work. He then became chief engineer to the Smithfield Markets Electric Supply Co. and later joined Robert Hammond as assistant engineer and superintended installations and extensions including those in Dublin, Pembroke and Hackney. Upon the completion of the last-named work in 1901 he became borough electrical engineer and he was responsible for all the subsequent developments including a £450,000 extension completed just before his retirement in 1934. He was one of the first supply engineers to tackle commercial development seriously and the magnificent showrooms and offices at Hackney were one result. Upon leaving Hackney he joined May & Hawes, consulting engineers.

Mr. Robinson was an Associate of the City and Guilds of London Institute and a member of he three premier engineering institutions.

Mr. J. Thomas.—We regret to announce the death on June 16th of Mr. Joseph Thomas, M.Eng., A.M.I.E.E., lecturer in electrical engineering at Liverpool Central Technical College, who was formerly associated with the English Electric Co., Ltd., Stafford.

Mr. W. J. Goddard.—A link with submarine cable-laying of half a century ago was severed on June 10th by the death at Hitchin at the age of eighty-five of Mr. William John Goddard, who for thirty-eight years was employed by W. T. Henley's Telegraph Works Co., Ltd. He entered Henley's service in 1884, and retired on pension in December, 1922. Throughout the whole of his service he was attached to the Test Department, and as a submarine cable jointer took part in a number of cable-laying expeditions in the famous *Westmeath* and other cable-laying ships.

Mr. H. Hartley, formerly works superintendent with Bournemouth Corporation Transport Department, died recently at the age of seventy-four. During the last war he was an instructor in electrical engineering, machine construction and drawing at Bournemouth Municipal College.

Will.—Mr. L. Thurner, managing director of Falk, Stadelmann & Co., Ltd., left £241,072, with net personalty of £29,807.

Electrical Fatalities

ONE of the workmen at the Padiham works of the Lancashire Electric Power Co. was killed a few days ago by coming into contact with an electric wire, said to have been broken 18 months ago when painters were working on the site. It was stated at the inquest that at that time the circuit was put out of action, two plugs being removed. How they came to be put back and how this wire which formed part of the circuit through which the lamps on the cooling tower were lighted, was allowed to remain, nobody knew. A negative or return fuse was missing. The exposed wire was in the open only two feet from a little-used path. A verdict of " Accidental Death " was returned.

An inquest was held at West Bridgford, Nottingham, last week on Florence Wood, who was electrocuted while using a vacuum cleaner. Mr. Frederick Lamb, electrical engineer, said he found that the insulation of the flexible wire feeding the switch assembly in the handle was punctured. When the switch had been assembled the wire had been trapped against the steel frame of the handle. Through the hook on the handle coming into contact with a gas pipe in the kitchen the current had short-circuited through the Morrison indoor shelter and the woman's body. If an earth wire had been fitted the accident would not have occurred.

A representative of the manufacturers of the cleaner said that his firm supplied three-core flex in towns where it was made compulsory, without extra charge to the purchaser.

The Coroner, recording a verdict of " Accidentally electrocuted," said he was glad to hear from Mr. Lamb that certain people were anxious that electrical appliances should be made safer. He hoped the trade would use all its power to see if something could be done.

Information for Contractors

E.C.A. Annual Meeting. Cable Restrictions.

THE Electrical Contractors' Association, and its allied organisations, N.E.C.T.A., Ltd., and the National Federated Electrical Association, are to hold their annual meetings at Africa House, Kingsway, W.C.2, on Tuesday next, June 30th.

Price Control

The Director of the E.C.A. (Mr. L. C. Penwill) has notified his members of the inclusion of several classes of electrical goods in the Board of Trade's list of price-controlled articles. Price control now applies to fittings and accessories for interior, domestic or office lighting ; wire and flex for domestic or office purposes ; heating, cooking, cleaning and other domestic appliances ; portable lamps and hand torches and accessories ; filament lamps ; dry batteries ; hair-waving and drying machines ; and radio receiving sets, radio-gramophones and accessories.

Restricted Materials

The Board of Trade has intimated that further restrictions are to be placed upon the supply of raw materials for the manufacture of domestic cookers, boiling plates, grillers, irons and space-heating apparatus.

Manufacturers will only receive allocations of iron and steel for the manufacture of these appliances if they fall within one of "six approved categories." These are apparatus for Government Departments ; apparatus for the purchase of which a Government Department's approval has been obtained (other than the Board of Trade) ; equipment for A.R.P. and N.F.S. quarters ; space-heating apparatus for public shelters ; space-heating apparatus for industrial and business premises engaged on essential work, public utility companies' premises and hostels for the employees on such premises where no alternative system is installed ; and apparatus for hospitals and institutions.

Cable Economy

Mr. Penwill draws attention to a memorandum issued by the Ministry of Supply on the certification scheme for the restriction of supplies of wires, cables and flexible cords insulated with rubber and rubber substitutes, and on the scheme for the restriction of t.r.s. cable.

As a general guide for manufacturers and wholesalers such cables, etc. (other than t.r.s.) may be released on the appropriate certificate for the following purposes :—

(a) Repair and maintenance of existing installations if essential for maintaining existing facilities. This covers domestic and business installations but does not apply to complete or large-scale rewiring of premises unless a Government Department vouches for the necessity.

(b) Extensions to existing industrial installations if the quantity is small and appears reasonable for the purpose. In other cases the relevant Government Department licence or contract number must be quoted.

(c) New industrial installations as in (b).

(d) New and/or additional domestic installations are discouraged by the Electricity Commissioners and will only be approved where it can be shown that failure to carry them out will result in serious hardship.

(e) Cable for machine tools will be sanctioned by a supply licence issued under the Machine and Plant Control Order.

(f) As regards firms engaged on vital war work who require cable for incorporation in components or articles in which Departments are directly or indirectly interested, cables will not be released without Departmental authority for completing such articles as electric fires, irons and other domestic apparatus for home use.

T.r.s. cable is being sanctioned only for certain purposes and every order must be approved by a Government Department. Cablemakers and wholesalers must refer any doubtful orders to the Ministry of Supply's Cable Planning Officer.

The Ministry of Supply will appoint inspectors to visit electrical contractors' premises and examine and check orders, certificates, licences and records and "appropriate action" will be taken in cases where doubt exists with regard to any transaction. The scheme came into force on February 16th and applies to all orders outstanding on that date whether partly completed or not.

Contractors' Indemnities

Mr. Penwill says that since the war commenced there has been a tendency for an increase in the number of occasions on which electrical contractors are required to give indemnities in respect of claims arising out of, consequent upon, or incidental to the execution of the work covered by contracts. He stresses the need for members to ensure that they are covered against such claims and draws attention to a suitable scheme offered by an insurance company.

Laboratory Furnaces

A RANGE of sizes of tubular and muffle furnaces for general laboratory purposes has been made available by Johnson, Matthey & Co., 73, Hatton Garden, E.C.1.

The furnaces are constructed in the company's own workshops, the standard T-type consisting of a heat-insulated case enclosing a high-temperature refractory tube 12 in. long and 1.25 in. internal diameter, prepared from fused alumina ; 9 in. of its length is wound with a heating element of platinum alloy, the advantage of which over the pure metal is its lower temperature coefficient of resistance, by reason of which the initial starting current is appreciably reduced although rapid heating is still permitted.

Heat losses are minimised by a series of graded lagging materials and a special refractory cylinder that surrounds the wound tube, so that a loading of 500 W suffices to produce an operating temperature of 1,350 deg. C. Temperature is controlled by a "Sunvic" energy regulator, which automatically compensates for voltage fluctuation without loss of power.

COMMERCE and INDUSTRY

Large Wage Increase Demand. Mysore Contracts.

Engineers' Wage Claim

DURING the conference of the Amalgamated Engineering Union at Blackpool last week a resolution was passed that immediate application should be made for wage increases to all members employed in all branches of the engineering, shipbuilding, ship-repairing and allied industries. The claim put forward was for an advance of 11s. on the basic rate ; a 33⅓ per cent. advance in lieu rate to all plain time workers ; levelling of base rates ; and restoration of working conditions in operation before June, 1931. The resolution was criticised by a number of members, including the president (Mr. J. Tanner) who said that the chance of getting the demands through was very small indeed. Mr. R. Openshaw pointed out that at a modest estimate the claims would cost £100 million a year. The executive's view, he said, was that a substantial case could be made out for an increase in the rates of plain time workers. Mr. F. Smith (secretary) said that the demands meant roughly an increase in wages of 35s. to 36s. a week.

A.E.U. Expansion

An increase of 111,088 in membership during 1941, raising the total to 605,542, is reported by the Amalgamated Engineering Union. The number of branches rose from 1,575 to 1,758 and at the end of the year the funds had reached a total of £4,313,541, an increase of £614,777 during the period.

Export Licence Concession Withdrawn

The Board of Trade and the Commissioners of Customs and Excise have withdrawn the concession under which goods have hitherto been allowed to be shipped after the date of expiry of the relative export licence, provided that they were pre-entered with the Customs before that date. On and after July 1st, goods must be shipped within the period of validity of an export licence. Where, however, Customs Officers are satisfied that the goods to be exported under export licence had been pre-entered with the Customs and had reached the loading berth before the licence had expired but had been shut out through circumstances beyond the exporter's control, a period of grace not exceeding fifteen days may be allowed. In cases, therefore, where there appears to be no prospect of shipping the goods before their licences expire, holders of licences should apply for the renewal of the licences at least a fortnight before the date of expiry.

Control of Chrome, Magnesite and Wolfram

The Control of Chrome, Magnesite and Wolfram (No. 3) Order, 1942, which came into operation on June 19th, extends the provisions of the Nos. 1 and 2 Orders by making the acquisition of refractory dolomite (including bricks, cements and compositions) subject to licence. A direction excludes from the licensing procedure any refractory dolomite, and any refractory dolomite which has been mixed with a bonding material but which has not been further processed or manufactured. Thus, for the time being, licensing is in effect limited mainly to dolomite bricks and the various stabilised dolomite clinkers. The new direction also terminates the exception of chromium metal from licensing made by the Control of Chrome, Magnesite and Wolfram (No. 1) Order, 1940, Direction No. 1, and the acquisition of chromium metal is consequently now subject to licence. Any communications in connection with this Order should be addressed to the Chrome Ore, Magnesite and Wolfram Control, Broadway Court, Broadway, London, S.W.1.

Plant for Mysore

Orders have been placed by the Mysore Government with Boving & Co., Ltd., for the impulse turbines for the Jog Falls hydro-electric scheme. The British Thomson-Houston Co., Ltd., is to supply the alternators, transformers and outdoor switchgear. The scheme utilises the waters of the Sharavati. A storage dam is being constructed about 13 miles above the Jog Falls with a barrage ten miles below the dam. The power plant is situated at about a mile from the falls and is planned to have an ultimate capacity of 120,000 kW. The initial installation comprises four 12,000-kW sets and the value of the contracts now placed is approximately £250,000.

Canteen Cooking Appliances

Three appendices to the Ministry of Works' "Schedule of Cooking Appliances" have now been published by H.M. Stationery Office.

Government Departments (who, with manufacturers, co-operated in producing the appendices) will quote from these schedules when ordering kitchen equipment. Appendix A, "Kitchen Machinery" (price 4d.), describes in detail the types of automatic, semi-automatic and hand-operated machinery, including dish-washing machines, mixers, vegetable paring machines, slicers, mincers, potato mashers, potato chippers and refrigerators which will be used in Government sponsored canteens. Appendix B, "Tea Making Appliances" (price 6d.), contains illustrated descriptions of café sets (with boiler above or below counter), water boilers for use with separate urns for bulk tea making, urns, bulk tea makers, etc., while Appendix C, "Portable Equipment" (price 4d.), describes wheeled ranges, food containers, ovens (suitable for use on ranges), cooking stoves, milk or porridge boilers, trolleys, pot racks, and other appliances.

Prefabricated Buildings

Outlines of a scheme which the Committee for Industrial and Scientific Provision of Housing (Albemarle Street, London, W.1) is developing for the employment of prefabricated components to cope with the rehousing problems after the war were given at a meeting held in London last week. Mr. Harry Weston, chairman of the Committee, declared that after the war the

building industry would be quite incapable of making up the deficiency of housing accommodation unless it was drastically reorganised. The skill and knowledge of the engineers now engaged in the production of implements of war should be utilised after the war for the manufacturing of parts of houses by modern production methods. These parts could be delivered to the building site ready for erection by assembly line methods such as are employed n other industries. It was the object of the Committee to collate all the information available from the various industries and organisations concerned.

The point that standardisation need not mean uniformity was emphasised by Mr. R. Perry, the executive officer of the Committee, who said that it was the Committee's aim to explore new methods of construction, to find the best materials and to bring the two together. Well-designed kitchen equipment, built-in-furniture and refrigerators were just a few of the things that should be considered as more or less standard features of the post-war house and the cost need not be prohibitive. The development of a complete prefabricated plumbing unit was mentioned by Mr. Edric Neel.

Post-war Social Services

When the Federation of British Industries published its memorandum on post-war reconstruction it was foreshadowed that complementary views would be put forward by the British Employers' Confederation to the Beveridge Committee on social insurance and allied services. The Confederation has now presented a survey and proposals. One of its principal recommendations is that the whole of the country's social services should be supervised by a permanent commission after the war; in the meantime it is proposed that a small nucleus commission should be set up to prepare schemes. This would leave employers and their organisations free to devote their whole energies to the immediate prosecution of the war.

Fostering Trade with Brazil

The first meeting of the new Brazilian Chamber of Commerce in Great Britain was held last week at the Brazilian Embassy, London. In his inaugural address the Brazilian Ambassador said that the war had in many ways developed closer economic ties between the two countries and he was certain that these would be strengthened after its victorious conclusion. A closer economic collaboration on the basis of mutual advantage would be the paramount object of the Chamber's activities. Senhor J. C. de Alencar, of the Embassy, thought that commerce between Brazil and Great Britain before the war had not attained a stage of development commensurate with the long-standing ties between the two countries.

Electrician Awarded Damages

An electrician, Mr. H. G. Stott, of Prescot, was awarded £1,000 damages and costs against British Copper Repairs, Ltd., in a case which was settled before Commissioner J. W. Morris, K.C., at Liverpool Assizes. Plaintiff, who was employed by the defendant company, was engaged in running an electric cable along the track of a travelling crane on July 25th last when the crane suddenly started. He received serious injuries and the grip of both of his hands had been rendered permanently limited.

Wages at Aberystwyth

At a recent meeting of Aberystwyth Town Council a grading scheme for the electricity office staff was adopted, ranging up to Grade E (£310 with £15 increments to £350). It was further agreed that in addition bonuses should be paid at the rate of 10 per cent. for the period October 3rd, 1941, to March 31st, 1942, and thereafter 13s. a week for men and 10s. for women (6s. 6d. and 5s. for employees under twenty-one).

It was decided that the question of the wages of workmen employed in the Electricity Department should be referred to arbitration. In the course of the discussion on the Electricity Committee's report it was revealed that a serious situation had arisen.

The regional industrial relations officer of the Ministry of Labour and National Service came to see whether an amicable arrangement could be arrived at.

Submarine Cables

In a recent B.B.C. " Brains Trust " discussion Commander Campbell suggested that submarine cables did not always rest on the sea bed, but that impression is corrected in a letter sent to the B.B.C. by Mr. G. B. Fuller of Henley's who quotes such authorities as Sir Charles Bright and Sir Henry Mance, as well as the experiences of his own company, in support of the statement that these cables are laid on the bed of the ocean.

It is stated that the Halifax-Bermuda Cable laid by Henley's in 1890, was the first submarine cable to be laid across the course of the Gulf Stream. It was prophesied by experts that because of this the cable would not sink to the bottom and if it did and had to be repaired it would be impossible to raise it. In approaching Bermuda the cable ran into 2,824 fathoms; its full weight was 2,000 tons and it was 850 nautical miles long. In spite of adverse weather the cable was laid in a fortnight; more than half of the time was occupied in making the necessary soundings.

Space-Saving and Paper-Saving

The Waste Paper Recovery Association points out that many companies are still unaware of the system of recording important documents on micro-films. The process is not very costly, it saves an appreciable amount of space and it is mobile. The company is then able to store large stocks in a safe deposit without incurring heavy rental charges. Those firms who have used this system have been able to release a tremendous tonnage of paper for essential national needs.

Exciter Lamps for 35-mm Projectors

The British Standards Institution has just issued a British Standard for exciter lamps (B.S. 1015). At a meeting of the Cinematograph Industry Committee held in 1938, consideration was given to a request which had been received from the Cinematograph Exhibitors' Association for the preparation of a British Standard for exciter lamps for 35-mm projectors. It was decided to appoint a technical committee to

draft a standard and the present document is a result of the committee's labours in which it was ably assisted by the Electric Lamp Manufacturers' Association. The specification is divided into six parts, dealing with definitions, general procedure, requirements, selection of lamps for test, conditions of test and rejection respectively. Copies of this specification may be obtained from the British Standards Institution, 28, Victoria Street, London, S.W.1 (price 2s. 3d. post free).

The Secretary's Responsibilities

In his address at the annual meeting of the Manchester Branch of the Chartered Institute of Secretaries on June 19th, Mr. Stuart M. Rix, F.C.I.S. chairman (secretary of the Lancashire Electric Power Co.), spoke of the very responsible if perhaps not spectacular work of secretaries at the present time. Mr. Rix said that it was very probable that their duties would increase rather than diminish in responsibility when the war was over. Many voices, both responsible and otherwise, were heard calling for drastic revision of the principles of business operation, ranging from suggestions of complete State ownership of all large businesses to proposals for more Government control of various aspects of business and the right of labour to have a share in management. It was not the custom in this country to make revolutionary changes without careful consideration, and in giving such consideration to the many matters which must arise regarding the operation and control of joint stock companies in the future, the responsibility of the secretarial profession would be great. Any new provisions which might be placed upon the Statute Book regarding such matters would involve secretaries in ever-increasing duties to the public.

Quality Control Chart

The British Standards Institution announces that B.S. 600R "Quality Control Chart" is now available and may be obtained from the Institution at 28, Victoria Street, S.W.1, for 3s. 10d. post free.

Southend Transport Vacancy

At a meeting of Southend Town Council held on June 16th it was decided to appoint a traffic manager at a salary of £800 per annum, rising by annual increments of £50 to £1,000 per annum, with such car allowance as may be allowed. The post has been vacant since May, 1941, but it is now felt that present conditions justify the appointment.

Change of Address

The Board of Trade announces that the whole of the Trading with the Enemy Department, with the exception of the Enemy Debts Registration Section, which is still at New Oxford House, is now at 24, Kingsway, London, W.C.2 (telephone: Holborn 4300).

Galway Harbour Gates

The electrically-controlled gates of the reconstructed harbour at Galway—which cost £250,000—were put into operation last week and handed over to the Harbour Commissioners by the contractors (Associated Contractors). By the scheme ships of 5,000 tons will be able to enter and leave the harbour at all states of the tides and tender services will be maintained with Atlantic liners at all times. Mr. E. Corbett, chairman of the Commissioners, switched on the power which opened the dock gates.

New Zealand Electrical Imports

Electrical machinery and equipment were imported into New Zealand during the calendar year 1941 to the value of £NZ1,982,000 compared with £2,278,000 during 1940. These totals do not include radio apparatus (£216,070 in 1941 against £250,700 in 1940) and vacuum cleaners (£19,580 against £62,430).

TRADE MARK APPLICATIONS

THE following applications have been made for British trade marks. Objections may be entered within a month from the dates stated :—

June 10th.

LINTONE. No. 618210. Radio and television sets.—H. H. Linton & Co., Ltd., 2, Highgate High Street, London, N.6.

MANGCROSS. No. 618629. Electrodes for electric arc welding.—Quasi Arc Co., Ltd., Grosvenor House, Park Lane, London, W.1.

June 17th

STANELCO. No. 618526, Class 7. Electric soldering machines and electric welding machines.—Standard Telephones & Cables, Ltd., also trading as Stanelco Products, Connaught House, 63, Aldwych, London, W.C.2.

PYE. No. 613073, Class 9. Radio apparatus and parts thereof, gramophone pick-ups, microphones, amplifiers and loudspeakers, all for use in the electrical reproduction of sound ; television apparatus and parts thereof ; electric oscillation generators ; electric batteries and accumulators.—Pye, Ltd., Cambridge.

PRECIPITRON. No. 618678, Class 11. Electrostatic air-cleaning apparatus and electrostatic air-conditioning apparatus.—Westinghouse Electric & Mfg. Co., East Pittsburgh, Penn., U.S.A. Address for service : G. R. Shepherd, 2, Norfolk Street, Strand, London, W.C.2.

INFORMATION DEPARTMENT

GENERAL inquiries from readers relating to sources of electrical goods, makers' addresses, etc., are replied to by our Information Department through the post. Inquiries should be accompanied by a stamped addressed envelope.

Our extensive records enable us to reply to most queries, but occasionally we ask for our readers' assistance in tracing names and addresses not known to us. We should be glad to have such information regarding the following :—

Addresses of London Electrical Appliances, Ltd., and Conradty Products, Ltd. (late of Wardour Street, London).

TROTTER wax.

GLYPTOL varnish.

RADIA vacuum cleaners

HERCULES pump diaphragms (Hector Macfarlane patent).

Workmen's Compensation

Variation and Settlement of Claims

By F. E. Sugden, A.C.I.S., Barrister-at-Law

IN an article in the *Electrical Review* of May 1st I dealt with an important case in reference to an employer's application to vary a workman's compensation and the results of it. It is possible that such cases will become more and more prevalent, and it is useful to examine the law generally in reference to the variation of workmen's compensation payments.

If an employer has too many claims or the payments are prolonged for a considerable time his insurance company will want to increase the amount of premium. He is thus impelled to limit as far as possible the claims and the amount paid out by the insurance company. Frequently the employer feels that an employee receiving compensation has recovered since the accident and therefore should receive less compensation. He may then require the employee to submit himself to medical examination in accordance with the Workmen's Compensation Rules. If the workman has recovered either partially or altogether the employer may apply to the County Court for an Order to stop or reduce the weekly payment of compensation.

Reasons for Variation

In the absence of agreement with the employee an employer is not entitled to terminate or reduce the compensation without an Order of the Court unless (*a*) the employee is receiving compensation for total incapacity and has actually returned to work or (*b*) he is receiving compensation for partial incapacity and his earnings have been increased, or (*c*) a medical certificate has been furnished by the employer's doctor to the effect that the workman has wholly or partially recovered.

In the last case the employer must send a copy of the certificate to the employee, who may then be examined by his own doctor. If this doctor certifies that the employee has not wholly or partially recovered the employer will not be able to stop or reduce the compensation. Similarly, an employee receiving compensation for partial disablement may, if disablement increases, apply to the County Court for an increase in the weekly payment.

What is the position when the rate of pay has increased since compensation became payable? The legal view is that the employee, at any time after six months from the date of the accident, may apply to the County Court of the district in which the accident occurred for an increase in weekly compensation if he can show that as compared with wages during the 12 months before the accident there has been a rise in the rate of remuneration in his trade by 20 per cent. Conversely, the employer is also entitled to apply for a reduction of compensation on the grounds that the wages have fallen by 20 per cent.

An employee may have fully recovered from his injuries and compensation ended, but further trouble may develop as a result of the injury, at a later date, as, for example, where he has developed an industrial disease as a consequence of his work and it has broken out again after a very considerable time. The Court may grant a " declaration of liability " under which no compensation would be payable for the moment, because the employee is already receiving adequate remuneration for such incapacity or he is more or less nearly receiving his former pay. But if he again becomes incapacitated from an old injury he will be able to apply again to the Court at a later date for compensation to be resumed, even though it is several years afterwards, if he proves that his present physical condition can be traced back to the particular accident.

Frequently employers or employees are able to settle a claim without recourse to the Courts. In such a case the memorandum of agreement should be registered in the County Court and it then becomes as enforceable as though it were a County Court judgment or even an Order of the Court.

Compensation for Dependants

In the case of fatal accidents when the deceased leaves persons entirely dependent upon him, the compensation must be equal to the workman's earnings in the employment of the same employer during the three years next preceding the injury, or £200, whichever is the larger, but not exceeding £300. This is subject to what is said later with reference to the recent Compensation Act, which has a very important bearing at the present time. If the employee has not worked for the employer for these three years, then compensation is 156 times his average weekly earnings during the period of his actual employment, but not exceeding £300; this is also subject to the later enactment. When the injury does not result in death but in total or partial incapacity for work, the compensation is a weekly payment during incapacity not exceeding 50 per cent. of the employee's average weekly earnings during the previous 12 months, if he has been so long employed, but if not, then for any less period during which he has been in the employment of the

same employer, such weekly payment not to exceed 30s.

If a break occurs in the employment during which the relation of master and servant cannot be said to exist (on account of a strike, for instance), the period to be considered for the purpose of ascertaining the average weekly earnings is that which has intervened since the break occurred.

I have referred to a new measure. This is the Workmen's Compensation (Supplementary Allowance) Act, 1940, which briefly provides for the payment of supplementary allowances to employees who may be entitled to weekly payment by way of compensation under the Workmen's Compensation Act, 1925.

Ordinarily the supplementary allowance will not exceed 5s. per week, but in the case of a male employee who has children under the age of 15 years he will also receive a supplementary allowance at the rate of 4s. per week for the eldest or only child under that age and for a second or subsequent child an additional sum of 3s. per week per child.

In the case of total incapacity the employee's compensation, with the supplementary allowance, must not exceed seven-eighths of his average weekly earnings before the accident. A partially incapacitated man will be entitled to seven-eighths of the difference between the amount of his average weekly earnings before the accident and the average weekly amount which he receives after the accident.

NEW PATENTS

Electrical Specifications Recently Published

The numbers under which the specifications will be printed and abridged are given in parentheses. Copies of any specification (1*s. each*) *can be obtained from the Patent Office*, 25, *Southampton Buildings*, *London*, *W.C.*2.

1940

9841. "Television systems." Hazeltine Corporation. June 7th, 1939. (545411.)

12279. "Electro-magnetic interrupters." Oak Manufacturing Co. July 29th, 1939. (545442.)

13048. "Electron beam deflecting yoke." Philco Radio & Television Corporation. October 21st, 1939. (545414.)

15225. "Electricity conductor units." L. G. Morten. October 14th, 1940. (Convention date not granted.) (545417.)

15601. "Television apparatus." J. L. Baird. October 23rd, 1940. (545462.)

15645. "Recording of alternating-current impulses." Radio Corporation of America. November 8th, 1939. (545465.)

16709. "High-frequency antennæ." Marconi's Wireless Telegraph Co., Ltd. November 24th, 1939. (545501.)

16768. "Electric transformers." British Thomson-Houston Co., Ltd. and W. B. Garrett. November 22nd, 1940. (545425.)

16770. "Composite articles of glass and metal." British Thomson-Houston Co., Ltd. November 22nd, 1939. (Cognate application, 16771/40.) (545426.)

16803. "Trimming condensers of the rotary ceramic type." Standard Telephones & Cables, Ltd., B. B. Grace and H. R. Stocks. November 22nd, 1940. (545431.)

16807. "Electron-discharge devices." Marconi's Wireless Telegraph Co., Ltd. November 24th, 1939. (545445.)

16839. "Electric glow discharge lamps." Union Lamp & Lighting Co., Ltd. and A. E. A. Farlen. November 23rd, 1940. (545506.)

16841. "Electrical transmission of communications." Akt.-Ges. Brown, Boveri & Cie. October 2nd, 1939. (545507.)

17042. "Suction cleaners." Hoover, Ltd. December 23rd, 1939. (545530.)

17043. "Sound reducing devices for suction cleaners." Hoover, Ltd. December 7th, 1939. (545531.)

17057. "Thermionic amplifiers and load devices therefor." Standard Telephones & Cables, Ltd. and A. W. Ewen. November 29th, 1940. (545535.)

17277. "Control switches for pressure-operated devices." Maschinenfabrik Oerlikon. November 6th, 1939. (545536.)

1941

1234. "Manufacture of bonded paper insulation." Micanite & Insulators Co., Ltd. and G. E. Haefely. January 30th, 1941. (545451.)

1370. "Electric magnetic strain gauges." British Thomson-Houston Co., Ltd. February 1st, 1940. (545479.)

2155. "Automatic reclosing circuit-breaker operating mechanism." British Thomson-Houston Co., Ltd. February 17th, 1940. (545482.)

2601. "Magnetos and other ignition equipment." British Thomson-Houston Co., Ltd. February 29th, 1940. (545540.)

4458. "Electric switches of the intermediate type." J. A. Crabtree & Co., Ltd., H. F. MacLoughlin and R. W. Morgan. April 3rd, 1941. (545488.)

5488. "Manufacture of sealed vitreous vessels." General Electric Co., Ltd. R. L. Breadner and N. Laycock. April 28th, 1941. (545544.)

6569. "Lightning arrestors." British Thomson-Houston Co., Ltd. May 22nd, 1940. (545546.

1942

1550. "Television systems." Hazeltine Corporation. June 7th, 1939. (Divided out of 545411.) (545440.)

3812. "Suction cleaners." Hoover, Ltd. December 7th, 1939. (Divided out of 545531.) (545547.)

5446. "Television apparatus." J. L. Baird. October 23rd, 1940. (Divided out of 545462.) (545491.)

Amended Specification

516413. "Automatic or semi-automatic telephone systems." J. E. Pollak.

ELECTRICITY SUPPLY

Cannock Bulk Supply. Economy in Eire.

Barrow-in-Furness.—DOMESTIC APPARATUS.—Sanction has been received by the Town Council to a loan of £1,450 for the replacement of domestic appliances.

Bexley. — RECTIFIER PLANT. — The Town Council is applying for sanction to borrow £2,850 in connection with rectifier plant.

Brierfield.—MINIMUM CHARGE SUSPENDED.—The Council has decided to discontinue the minimum charge of £1 10s. 0d. per annum for electricity supplies during the present emergency.

Cannock.—BULK SUPPLY ARRANGEMENTS.—The Urban District Council has decided to give six months' notice of its intention to terminate the agreement for a bulk supply of electricity from the Wolverhampton Corporation. Arrangements have been made to obtain a supply from the West Midlands Joint Electricity Authority, of which Cannock is a constituent member.

Clitheroe. — APPLICATION OF SURPLUS REVENUE.—The Electricity Commissioners have granted permission for the Electricity Committee to apply £1,392 from net surplus revenue in payment of expenses chargeable to capital in the provision of a substation sprinkler installation.

Glasgow.—HOSPITAL INSTALLATION.—The Corporation Health Committee has arranged for the Electricity Department to supply circulating pumps, electrical relays, immersion heaters, etc. for Woodilee Hospital at an estimated cost of £237.

MAINS EXTENSIONS.—The Electricity Committee is to extend mains at a cost of £3,309.

London.—TARIFF ALTERATIONS.—Poplar Electricity Committee recommends the suspension of the system of rebates to domestic consumers whose consumption for cooking and heating exceeds 100 kWh per month. In addition, owing to the cost of fuel, etc., the Committee proposes to amend the present tariff of consumption in kWh per month to power factories and workshops, as follows:—Up to 2,500 kWh per month, 1.5d. per kWh; 2,501 to 5,000 kWh per month, 1.25d. per kWh; and 5,001 kWh and upwards per month, 1d. per kWh.

LIBRARY WIRING.—Islington Libraries Committee is to re-wire the south-east branch library.

Swinton and Pendlebury.—HEATING OF SHELTERS.—The Town Council is to install electric heating apparatus in air-raid shelters where sleeping bunks are supplied.

Overseas

Argentina.—POWER OUTPUT.—According to a return issued by the Argentine Association of Electricity Producers and Distributors, the sales of electric power in the Republic during the nine months to September, 1941, aggregated 1,514.5 million kWh, compared with 1,468.9 million kWh during the corresponding period of the preceding year.

BUENOS AIRES' LIGHTING RESTRICTIONS.—The *Review of the River Plate* recently reported that the municipal department of Buenos Aires responsible for measures for economising electricity has restricted the lighting of shop windows from 9 p.m. onwards.

Eire.—ELECTRICITY ECONOMIES.—The Electricity Supply Board reports that important economies have resulted from the restrictions recently enforced. Approximately 1,500 tons of coal are being saved weekly including 1,000 tons due to the decrease in domestic consumption of electricity and 500 tons due to restricted activities in certain industries. Weather conditions over the past few weeks have resulted in a good flow on the River Shannon, and the hydro-electric station at Ardnacrusha has been able to supply half of the total consumption of the whole country. Thus it has been possible to maintain the electricity supply with a very restricted coal consumption. The E.S.B. once more impresses on the public the necessity for cutting out every non-essential use of electricity. It is not sufficient, it declares, to carry out the restrictions; this is the minimum requirement.

The Board acknowledges that the majority of consumers are acting as good citizens and giving every help, but a small proportion are not doing so, and the E.S.B. has therefore decided to check the consumption of each of its 200,000 customers.

TRANSPORT

France.—TROLLEY-BUSES IN PARIS SUBURBS.—Trolley-buses have now put in an appearance in the suburbs of Paris. The first line runs from the Port de Champeret to Petit-Colombs and another from the same Paris terminus to Pont d'Argenteuil. The buses are double deckers and operate at 600 V. Nearly all motor bus services have been withdrawn because of the petrol shortage.

ELECTRIC RAILWAY TO RUSSIA.—*Le Matin*, pro-German Paris paper, recently published a long article describing an ambitious electric railway scheme which it is said German engineers are now working out. According to the article, construction of the line, which will extend from Cologne to Stalino in the Ukraine, is to be started at the end of the war. The proposed line would avoid large industrial areas and would pass round such cities as Berlin, Warsaw, Kiev and Kharkov, to connect with which special branch lines would be built. Later the line would be developed with termini at Berne, Rome, Paris and Madrid. The line now being worked out would be 3,000 kilometres long and the electric locomotives of the latest type would travel at 160 to 170 km. per hour.

RADIO & TELEPHONY

United States.—RADIOPHOTO SERVICE TO EGYPT.—Recently President Roosevelt welcomed the opening of a direct radiophoto service between Egypt and the United States as "another vital link in the world-wide network of communications." The first picture sent from the United States was one of President Roosevelt and the Egyptian Minister to Washington; the first from Egypt was of King Farouk.—*Reuter.*

FINANCIAL SECTION

Company News. Stock Exchange Activities.

Reports and Dividends

The Anglo-Portuguese Telephone Co., Ltd., reports a net profit of £83,352 for last year, as compared with £84,882 for 1940. The distribution on the ordinary and "A" ordinary shares is maintained at 8 per cent. and £38,434 (against £37,057) is carried forward. The number of stations rose by 3,419 during the year to a total of 58,223.

In a statement circulated with the report, the chairman (Sir Alexander Roger) says that the company is an interesting example of mutually beneficial international trade carried on between two friendly countries on sound economic lines. The problems concerning supplies and equipment continue to increase and there is no likelihood of their becoming easier until the war is over. The difficulties are being minimised by the ingenuity of the company's engineering staffs. There is an upward trend both in the demand for new telephones and in the subscribers' calling rate. Relations with the Portuguese Government continue to be extremely cordial.

The Chloride Electrical Storage Co., Ltd., reports a net profit, after meeting E.P.T., of £431,398 for 1941–42 (against £436,941). Income tax absorbs £125,000 (£159,000); £36,000 (£32,000) is put to employees' pensions funds; £75,000 (same) is transferred to reserve; and the dividend and bonus on the "A" and "B" ordinary stocks is maintained at 15 per cent., leaving £111,477 (against £83,104) to be carried forward.

Marconi's Wireless Telegraph Co., Ltd., which is controlled by Cable & Wireless (Holding), Ltd., reports that profits from contracts and sales, etc., for 1941 amounted to £625,812 (against £441,604). Dividends and sundry receipts totalled £146,210 (£152,128), including £101,176 (same) from Cable & Wireless, Ltd., making a total of £772,022, an increase of £208,290. The net profit after providing £122,966 (£60,432) for depreciation, £100,000 against assets in enemy and enemy-occupied territories (against £26,484 written off foreign investments) shows an increase from £168,484 to £232,452, subject to E.P.T. The ordinary dividend is maintained at 7 per cent., and the carry forward is increased from £13,748 to £87,291.

Cable & Wireless, Ltd., records a total income for 1941 of £9,075,649, an increase of £1,580,778 on the previous year's figure. After providing £129,689 (£131,021) for cable renewals and £155,000 (£164,000) for amounts written off the cost of terminating a joint purse agreement, and other expenditures, the profits amounted to £2,928,349, an increase of £552,578. After paying a final dividend of 2½ per cent., making 4 per cent. (same) the carry-forward is increased by £1,728,349 to £3,341,956. This figure is, however, subject to E.P.T., which has not yet been assessed.

Cable & Wireless (Holding), Ltd., reports a profit for 1941 of £1,215,706, an increase of £7,756 as compared with 1940. As already announced the ordinary dividend for the year is maintained at 4 per cent., and the balance carried forward is £254,905, an increase of £18,219.

Telephone Properties, Ltd., have decided to defer the payment of the dividend on the 8 per cent. preference shares due on July 31st. This follows the deferment of the payment due in January.

Tilling & British Automobile Traction, Ltd.—Arrangements are under consideration for the transfer of the company's assets to two new companies to be formed which it is believed will lead to greater efficiency. The proposals will involve the replacement of each existing £1 share by two 10s. shares, one in each of the two new companies. No increase of capital or payment by any of the shareholders will be involved.

The British Electric Traction Co., Ltd.—In his speech at the annual meeting on June 19th the chairman (Mr. R. J. Howley) referred to the Tilling scheme. He said that the company's road transport and electricity supply companies had been busily engaged. Their organisation had proved its usefulness under the present difficult conditions and had shown that group control of locally-managed public utility undertakings under skilled direction was probably the most efficient and cheapest way of providing such services. He did not consider that the large unwieldy boards advocated by Lord Reith would be either efficient or desirable in the national interest.

W. T. Henley's Telegraph Works Co., Ltd., announce a net profit of £326,380 for 1941, against £320,565. The distribution on the ordinary shares is maintained at 20 per cent. by a final dividend of 10 per cent. plus a bonus of 5 per cent.

Siemens Bros. & Co., Ltd.—At the annual meeting on June 19th the chairman (Lord Queenborough) referred with regret to the recent death of Mr. Mure Ritchie who had been a director of the company for many years. The chairman's statement which had been circulated with the annual report was taken as read.

The Enfield Rolling Mills, Ltd., held its annual general meeting last week. The Earl of Verulam, chairman, who presided, stated that the company had continued to make progress, and its service to the nation and the quality of its products steadily improved with the increasing experience of the staff and the skill of the men.

The London Electric Wire Co. & Smiths, Ltd., records a net profit for 1941 totalling £88,553 after providing for taxation, etc. This compares with £96,988 in 1940. After paying a final dividend of 5½ per cent. on the ordinary shares, making 7½ per cent. for the year, £110,234 (£102,986) is carried forward.

The Electric Construction Co., Ltd., reports a net profit, before providing for taxation, of £97,966 for the year ended March 31st last. This compares with £92,264 in 1940–41.

Provision for taxation requires £43,500 (£48,000) and preference dividends £7,000 (same). The ordinary dividend is maintained at 10 per cent. and £15,000 is placed to reserve, leaving £32,689 (£30,223) to be carried forward. In the previous year a sum of £2,500 was allocated to employees' superannuation fund.

The International Telephone & Telegraph Co., Ltd. records gross earnings for 1941 amounting to $29,414,244 ($27,088,270), operating expenses, taxes, etc. $21,898,815 ($19,376,577), net earnings $7,515,429 ($7,711,693), plus profit on exchange $66,996 ($214,410), making total net earnings of $7,582,425 ($7,926,103). After meeting charges of subsidiaries and interest charges there is a net loss of $193,218 ($27,219 net income).

British Timken, Ltd.—At the annual meeting last week Mr. John Pascoe, deputy chairman, pointed out that the balance of current assets over current liabilities indicated that the essential strength of the company's financial position had been more than preserved. The contingency reserve now stood at £40,000.

Ruston & Hornsby, Ltd., announce that the net retainable profit for 1941–42 was £191,222 (against £194,359) and the disposable balance is £246,598 (against £257,626). After meeting the dividends (12½ per cent. on the ordinary stock) and transferring £21,825 to general reserve a balance of £59,273 (£67,126) is carried forward.

Keith Blackman, Ltd., reports that after allocating £69,000 (against £52,500) for taxation, the net profit for the year ended March 31st last was £58,752 (£38,414). A sum of £15,000 (nil) is placed to reserve and a dividend of 20 per cent. (17½ per cent.) is paid on the ordinary shares, leaving £46,525 (£38,773) to be carried forward.

The Electric & General Investment Co., Ltd., received a gross revenue of £11,436 during the year ended May 31st. After meeting debenture interest and taxation the ordinary dividend is maintained at 9 per cent. by a final payment of 6½ per cent. and £19,787 is carried forward.

The Bagdad Light & Power Co., Ltd., reports a profit of £96,026 for the year ended December 31st last, as compared with £82,337 in the previous year. Depreciation absorbs £24,803 (£22,913), debts in occupied territory £2,835 (nil), British taxation and the Iraq Government's share in profits £50,297 (£37,593), leaving £18,091 (£21,831). A dividend of 4 per cent. (5 per cent.) is paid, leaving £8,235 (£8,207) to be carried forward.

The Altrincham Electric Supply, Ltd., is to pay a final dividend of 2½ per cent. on the ordinary shares, making 12½ per cent. (same) and 2 12/19d. per share on the 5s. deferred shares, making 1s. 1 17/19d. for the year.

The Harland Engineering Co., Ltd., has declared a dividend of 4 per cent. for the past year (against 3 per cent.).

Meters, Ltd., is paying a final ordinary dividend of 6 per cent. making 10 per cent. for the year (against 9 per cent.). The net profit rose from £12,990 to £28,668.

Simms Motor Units, Ltd., is paying an ordinary dividend of 8 per cent. for 1941 (against 6 per cent.). The net profit rose from £32,179 to £53,374.

The Power Corporation of Canada, Ltd., is maintaining its interim dividend at 15 cents per share.

R. B. Pullin & Co., Ltd., are again paying an interim dividend of 5 per cent.

New Companies

Battery Construction, Ltd.—Private company. Registered June 2nd. Capital, £5,000. Objects: To carry on the business of manufacturers of, and dealers in, electrical and mechanical apparatus or equipment, including batteries of all types, etc. Directors: N. Pensabene-Perez, Royal Clarence Hotel, Bridgwater (managing director of Electro Dynamic Construction Co., Ltd.); K. W. Hogan, Stoke St. Gregory, near Taunton (manager of same company); H. W. Pook, Mill House, West Huntspill, Highbridge, Somerset and E. J. Timberlake, St. Mary Cray, Kent (director of Electro Dynamic Construction Co.). Registered office: Lower Bristol Road, Bridgwater, Somerset.

T. E. W. Sales, Ltd.—Private company. Registered June 11th. Capital, £100. Objects: To enter into an agreement with C. Cook and C. H. Hoskins, and to carry on the business of manufacturers of electric cable and wire for use in telephone, electrical and wireless installations, metal rollers, nail manufacturers, etc. Directors: C. R. Hoskins, 27, Deacon Road, Wylde Green, Birmingham, and Dorothy Ashworth, 29, Sunny Hill Avenue, Derby. Secretary: Dorothy Ashworth. Registered office: 109, Colmore Row, Birmingham, 3.

Ceantee, Ltd.—Private company. Registered June 3rd. Capital, £500. Objects: To carry on the business of electrical and general engineers and contractors, manufacturers of, and dealers in, cleansing, heating, lighting, power and radio appliances and electrical goods and accessories, etc. Directors: R. L. Chapman, 69, Hay Lane, N.W.9 and S. A. Frost, 46, Manor Park Gardens, Edgware. Secretary: L. C. W. Mountford. Registered office: 27, Park Mansions, Hendon Central, N.W.4.

Vale Engineering Co. (Todmorden), Ltd.—Private company. Registered June 11th. Capital, £2,000. Objects: To carry on the business of electrical, motor, mechanical and radio engineers and contractors, electricians, tool makers, etc. Directors: James A. Ackroyd, Pye West Gardens, Halifax and four others. Registered office: 8, Ormerod Street, Burnley.

Buckleys (Uvral), Ltd.—Private company. Registered June 13th. Capital, £1,000. Objects: To carry on the business of dealers in ultra-violet ray, infra-red ray and all electro-medical and general magnetic and galvanic instruments and appliances, etc. Mrs. Augusta Buckley, 30, Bishops Mansions, Fulham, is the first director.

Arnold V. Williams & Co., Ltd.—Private company. Registered June 13th. Capital, £1,000. Objects: To carry on the business of electrical engineers and contractors, etc. Directors: A. V. Williams, Benton Green Lane, Berkswell, Warwickshire, and W. O. Harper, 92, Job's Lane, Coventry. Registered office: 63, Hill Street, Coventry.

Clyde Electrical Services, Ltd.—Private company. Registered in Edinburgh, June 2nd. Capital, £500. Objects : To carry on the business of electrical engineers, radio and telephone engineers, welders, etc. Directors : H. Winning, The Croft, Kilmacolm, Renfrewshire and E. C. S. Lorimer, 36, John Street, Gourock.

Anglo Signs, Ltd.—Private company. Registered June 5th, Capital, £100. Objects : To carry on the business of gas, electrical and general engineers, makers of illuminated, road, neon, reflex, enamelled plate, box and other signs, shop facias, interior lighting and flood lighting, window display and advertising agents and contractors, etc. Directors : Henry Bay (director of Franco Signs, Ltd.), George V. Macchi and Joyce A. Goss, all of East Arms Hotel, Hurley, Berks. Registered office : East Arms Hotel, Hurley, Berks.

Kulaire Refrigeration Co., Ltd.—Private company. Registered in Dublin May 19th. Capital, £100. Objects: To carry on the business of manufacturers, providers, vendors, hirers and repairers of all electrical appliances, motor fans, thermostats, switchgear, cables and all parts thereof. Subscribers: R. H. Mahon, 17, Eglinton Park, Donnybrook, Dublin. J. Crooke, 51, Phibsboro' Road, Dublin, and M. Kane, 42, Upper Erne Street, Dublin.

Companies' Returns

Statements of Capital

W. D. Willson, Ltd.—Capital, £1,500 in £1 shares. Return dated January 14th, 1942. All shares taken up. £1,500 paid. Mortgages and charges: Nil.

Husbands, Hart & Warburton, Ltd.—Capital, £3,000 in £1 shares. Return dated May 20th, 1941 (filed February 11th, 1942). 1,503 shares taken up. £1,503 paid. Mortgages and charges: Nil.

Multitone Electric Co., Ltd.—Capital, £20,000 in 20,000 shares of £1 each. Return dated. March 10th, 1942. 16,750 shares taken up, £11,750 paid. £5,000 considered as paid. Mortgages and charges: Nil.

London Electrical Co. (Blackfriars), Ltd.—Capital, £20,000 in 20,000 shares of £1 each. Return dated March 12th, 1942. 15,582 shares taken up. £15,582 paid. Mortgages and charges: Nil.

British Electrical Export Co., Ltd.—Capital, £2,000 in £1 shares. Return dated January 12th. 198 shares taken up. £198 paid. Mortgages and charges : Nil.

Wombwell Electrical Contracting Co., Ltd.—Capital, £500 in 500 shares of £1 each. Return dated December 31st, 1941 (filed March 5th, 1942). 462 shares taken up. £462 paid. Mortgages and charges : Nil.

Autocar Electrical Equipment Co., Ltd.—Capital, £5,000 in £1 shares. Return dated December 31st, 1941 (filed March 12th, 1942). 4,002 shares taken up. £4,002 paid. Mortgages and charges : Nil.

Great Asby Electric Light & Water Co., Ltd.—Capital, £2,000 in £5 shares. Return dated January 17th (filed March 12th), 1942. 282 shares taken up. £1,410 paid. Mortgages and charges : Nil.

H.E.C. Electric Co., Ltd.—Capital, £1,000 in £1 shares (400 preference and 600 ordinary). Return dated October 29th, 1941 (filed March 12th, 1942). 170 preference and 203 ordinary shares taken up. £173 paid. £200 considered as paid. Mortgages and charges : Nil.

Simmonds & Stokes, Ltd.—Capital, £15,000 in ordinary shares of £1 each. Return dated March 13th, 1942. 10,204 shares taken up. £1,725 paid. £8,479 considered as paid. Mortgages and charges : £13,550.

Century Electric Co., Ltd.—Capital, £5,000 in £1 shares. Return dated December 31st, 1941 (filed March 16th, 1942). 2,387 shares taken up. £2,387 paid. Mortgages and charges : Nil.

Hatch End Electrical Co., Ltd.—Capital, £500 in £1 shares Return dated January 14th, 1940 (filed March 13th, 1942). 300 shares taken up. £300 paid. Mortgages and charges : Nil.

Mortgages and Charges

Helios Electric Lamp & Glass Works, Ltd.—Particulars filed of debentures for not more than £4,500 authorised May 28th, charged on the company's undertaking and property, present and future, including uncalled capital, the amount of the present issue being £3,000.

Brush Electrical Engineering Co., Ltd.—Satisfaction to the further extent of £4,670 on April 16th of trust deed dated October 14th, 1938, and registered October 28th, 1938, securing £150,000 debenture stock.

Receiver Released

British Electric Hydrators, Ltd.—J. J. Jubb, Albert Buildings, 151/7, Fitzwilliam Street, Sheffield, ceased to act as receiver and manager on May 27th.

Bankruptcies

B. S. Wainwright, electrician, 2, Hillcrest Gardens, Dollis Hill Lane, Cricklewood, N.W.2, lately carrying on business as " The Wells Road Garage " at 197–202, Wells Road, Shepherd's Bush, W.12, and as " Wainwright Neon Displays " at Shepherd's Bush, previously at Harlesden, N.W.10.—Trustee, Mr. P. Phillips, 76, New Cavendish Street, London, W.1., appointed June 1st.

L. R. Williams, electrical contractor, 1a, Angel Street, Bridgend.—Proofs for dividend by July 1st to the trustee, Mr. R. Betts, Official Receiver, Government Buildings, 10, St. Mary's Square, Swansea.

Liquidations

Radio Service Co. (Reading), Ltd., 463, Oxford Road, Reading.—A meeting of creditors was held recently at the offices of Messrs. Latham & Co., 185–188, High Holborn, London, W.C. The voluntary liquidation of the company with Mr. A. W. Hunter, of Messrs. Latham & Co., as liquidator was confirmed.

G.V.D. Illuminators, Ltd.—Meeting July 30th at 32a, Weymouth Street, London, to hear an account of the winding up by the liquidator, Mr. T. Taylor.

STOCKS AND SHARES

TUESDAY EVENING.

THE character of the recent news from Cairo has not been sufficiently encouraging to promote optimism or business in Stock Exchange markets. It has, however, had very little effect on prices, its influence being felt more particularly in the contraction of business. Prices remain steady. Investment is gradually adjusting its angle of view to the point at which decreased earnings, owing to taxation, are no longer regarded as a reason why shares in good-class companies should be sold. Dividends as a whole are maintained on the same level as those of twelve months ago.

The recent ardour for South and Central American issues has subsided to some extent, though Brazilian Tractions continue to be a feature of strength. At the end of last week, a number of Electricity Supply 6 per cent. preference shares were marked down 6d. apiece—a matter which may not be without a wider significance than attaches to this particular group.

The drastic restrictions which are to be placed on road travel in the near future, should provide a bull point for Home Railway stocks. Southern Railway stocks have weakened a trifle. The speculative London Passenger Transport "C" stock is 10s. up, at 41.

Cable and Wireless

Cable and Wireless ordinary stock receded a trifle as speculative interest died down after the price had been marked ex dividend, and there seemed to be nothing much else to go for, as the Stock Exchange says, for another six months. Speculative investment is, however, taking no little interest in a stock which has attraction to those who recognise the scope for profitable operation by Cable and Wireless at the present time. It may be surmised that the Combine is maintaining its cables, etc., as being of strategic value to the Empire, though that same surmise will undoubtedly extend to the impression that, as most messages now go by wireless, the expenses of Cable and Wireless are materially reduced when the cost of the upkeep and maintenance of cables is considered. With such considerations as these in mind, the investor who likes a speculative touch in his securities probably feels that the ordinary stock at 61, yielding as it does at that price £6 18s. 0d. per cent. on the money, holds scope for possible appreciation in the future if the dividend should be increased.

Telegraph and Telephone

Amongst interesting price changes, a rise to 15½ in Great Northern Telegraphs will be noticed. The company is Danish, but is understood to have a large amount of the present market-price of the shares, represented by British gilt-edged securities. International Telephone and Telegraph shares are harder at 3¾. Oriental Telephones have strengthened to 47s. 6d. Automatic Telephones at 51s. 3d. are 9d. easier.

Electric Construction

Electric Construction has declared a first and final dividend of 10 per cent. for the year, being the same as that for the previous year. At 34s. 6d. the shares pay £5 16s. 0d. per cent. on the money and are regarded in the market as a sound industrial investment of their kind. The company's career has not been without ups and downs. A profit in 1933 of £15,500 was succeeded by a loss in 1934 of £8,729. Since then, the profits have progressed steadily. In the years 1931 to 1934, the ordinary shares received no dividend. In the next three years the distributions were 3½, 7 and 10 per cent. respectively. Then followed two years in which the ordinary shares received bonuses in addition to the 10 per cent., and for the last two years, as already mentioned, the dividend has been 10 per cent. The company has a good balance sheet. Patents and goodwill are included therein at the nominal amount of £1.

Fluctuations in Prices

British Electric Traction deferred ordinary stock at 935 has shed 20 points. Thomas Tilling are $\frac{1}{16}$ down at 48s. 9d., on the announcement of road services being severely curtailed. Mexican Light & Power first mortgage bonds, at 85, show a further rise of 1½, but the seconds, after touching 62, reacted to 58. Brazilian Tractions, as previously mentioned, are again better at 15½, after reaching 15⅝. Electricity supply shares are unchanged with the exception of a fall of 6d. to 28s. in Edmundsons ordinary. In the Overseas group, the recent rise in Calcutta Electrics brought in a few sellers and the price has receded in consequence to 17s. The industrial list keeps firm. Pye deferred shares at 16s. 3d. are $\frac{1}{16}$ higher and British Vacuum Cleaner at 13s. 9d. are half-a-crown up. E. K. Cole have again gained 3d. with a rise to 11s. 9d., E.M.I. shares at 16s. 3d. being similarly lower. Aron Meter shares at 24s. have recovered 1s.

Shares on Offer

Most of the British Electric Traction 8 per cent. preferred stock that was on offer at 185, as indicated here in the early part of the month, has now been taken. The remainder —£1,500 at the moment— can be bought at 185, ex the June dividend, to pay £4 6s. 6d. per cent. on the money. British Thomson-Houston 7 per cent. £1 preference shares, are on offer at 35s. 9d. ex the dividend due on the last day of this month. The yield is a modest

(*Concluded o n page* 839)

ELECTRICAL INVESTMENTS

Prices, Dividends and Yields

Company	Dividend 1939–40	Dividend 1940–41	Middle Price June 23	Rise or Fall	Yield p.c. £ s. d.
Home Electricity Companies					
Bournemouth and Poole	12½	12½	53/9	..	4 13 0
British Power and Light	6	6	28/6	..	4 4 3
City of London	7	7	27/6	..	5 1 9
Clyde Valley	8	8	40/–	..	4 0 0
County of London	8	8	37/6	..	4 5 6
Edmundson's:					
7% Pref.	7	7	35/–	..	4 *0 0
Ord.	6	6	28/–	–6d.	4 5 9
Elec. Dis. Yorkshire	9	9	42/–	..	4 5 9
Elec. Fin. and Securities	12½	12½	48/9	..	5 2 6
Elec. Supply Corporation	10	10	45/–	..	4 9 0
Isle of Thanet	2	Nil	11/3	..	—
Lancs. Light and Power	7½	7½	35/–	..	4 5 9
Llanelly Elec.	5½	5½	22/6	..	4 17 9
Lond. Assoc. Electric	4½	4	19/6	—	4 2 1
London Electric	6	6	25/–	..	4 16 0
London Power Red. Deb.	5	5	105½	..	4 14 7
Metropolitan E.S.	8	8	36/3	..	4 8 6
Midland Counties	8	8	39/6	..	4 1 0
Mid. Elec. Power	9	9	42/–	..	4 5 9
Newcastle Elec.	7	7	27/6	..	5 1 10
North Eastern Elec. Ordinary	7	7	31/3	..	4 9 7
7% Pref.	7	7	34/6	..	4 1 2
Northampton	10	10	47/–	..	4 5 1
Notting Hill 6% Pref. (£10)	6	6	9	..	—
Northmet Power:					
Ordinary	7	7	35/9	..	3 18 4
6% Pref.	6	6	32/–	..	3 15 0
Richmond Elec.	6	6	25/–	..	4 16 0
Scottish Power	8	8	39/6	..	4 1 0
Southern Areas	5	5	21/3	..	4 14 0
South London	7	7	27/6	..	5 1 10
West Devon	5	5	21/3	..	4 14 0
West Glos.	4½	3½	20/–	..	3 10 0
Yorkshire Elec.	8	8	40/–	..	4 0 0
Overseas Electricity Companies					
Atlas Elec.	Nil	Nil	4/6	–3d.	—
Calcutta Elec.	7*	7*	27/–	–1/9	5 3 10
Cawnpore Elec.	10	10	25/–	..	8 0 0
East African Power	7	7	27/–	..	5 3 8
Jerusalem Elec.	7	5	18/9	..	5 6 8
Kalgoorlie (10/–)	7½	7½	7/6	..	10 0 0
Madras Elec.	6*	4*	18/9	..	4 5 4
Montreal Power	1½	1½	24½	+½	6 2 5
Palestine Elec. "A"	Nil	Nil	21/3	..	—
Perak Hydro-elec.	6	7	7/6	..	—
Shawinigan Power	83cts.	90cts.	15½	+½	—
Tokyo Elec. 6%	6	6	12	..	—
Victoria Falls Power	15	15	77/6	..	3 17 5
Whitehall Inv. Pref.	7½	5	15/9	..	6 7 0

Company	Dividend 1939–40	Dividend 1940–41	Middle Price June 23	Rise or Fall	Yield p.c. £ s. d.
Public Boards					
Central Electricity:					
1950–70	5	5	110½	..	4 10 6
1955–75	5	5	115	..	4 7 9
1951–73	4½	4½	107½	..	4 3 7
1963–93	3½	3½	103½	..	3 7 8
1974–94	3½	3½	99½	..	3 5 4
London Elec. Trans. Ltd.	2½	2½	96	..	2 12 1
London & Home Counties 1955–75	4½	4½	112	..	4 0 4
Lond. Pass. Trans.:					
A	4½	4½	115½	–1	3 18 0
B	5	5	113½	..	4 8 4
C	3	2⅞	41	+½	7 0 3
West Midlands J.E.A. 1948–68	5	5	110	..	4 11 0
Telegraph and Telephone					
Anglo-Am. Tel.:					
Pref.	6	6	111½	–1	5 7 8
Def.	1½	1½	26	..	5 15 5
Anglo-Portuguese	8	8	18/9	..	8 10 8
Cable & Wireless:					
5½ Pref.	5½	5½	102	..	5 7 10
Ord.	4	4	60½	–½	6 12 2
Canadian Marconi $1	Nil	4cts.	5/–	..	3 7 0
Globe Tel. & Tel.:					
Ord.	8½*	8½*	27/6	..	—
Pref.	6	6	27/6	..	4 7 5
Great Northern Tel.: (£10)	Nil	Nil	15½	+1	—
Inter. Tel. & Tel.	Nil	Nil	3¾	+¼	—
Marconi-Marine	7½	7½	28/9	..	5 4 4
Oriental Tel. Ord.	11½*	16	47/6	+½	6 14 8
Telephone Props.	6	Nil	10/–	..	—
Tele. Rentals (5/–)	10	10	9/–	..	5 11 1
Traction and Transport					
Anglo Arg. Trans.:					
First Pref. (£5)	Nil	Nil	5/–	..	—
4% Inc.	Nil	Nil	12½	..	—
Brit. Elec. Traction:					
Def. Ord.	45	45	935	–20	4 16 3
Pref. Ord.	8	8	180	..	4 9 0
Bristol Trams	8	10	46/3	..	4 6 4
Brazil Traction	$1	50c	15½	+½	—
Calcutta Trams	8	5½	18/3	..	6 0 9
Cape Elec. Trams	5	5	20/–	..	5 0 0
Lancs Transport	10	10	43/9	..	4 11 4
Mexican Light:					
1st Bonds	5	5	85	+1½	5 17 0
Rio 5% Bonds	5	5	98	..	5 2 0
Southern Rly.:					
5% Prefd.	5	5	64½	–1	7 15 0
5% Pref.	5	5	106½	–1	4 14 0
T. Tilling	10	10	48/9	–⅛	4 2 0
Tilling & B.A.	7*	6½*	55/–	..	2 7 3
West Riding	10	10	39/6	..	5 1 3

(*Continued on next page*)

* Dividends are paid free of Income Tax.

Company	Dividend 1939–40	Dividend 1940–41	Middle Price June 23	Rise or Fall	Yield p.c.
Equipment and Manufacturing					£ s. d.
Aron Elec. Ord. ..	Nil	7½	24/–	+1/–	6 5 0
Assoc. Elec.:					
Ord.	10	10	45/9	..	4 7 6
Pref.	8	8	39/6xd	..	4 1 0
Automatic Tel.& El.	12½	12½	51/3	–9d.	4 17 3
Babcock & Wilcox .	11	11	42/6	..	5 3 6
British Aluminium .	10	10	44/6	..	4 10 1
British Insul. Ord. .	20	20	93/9	..	4 5 6
British Thermostat (5/–)	18½	18½	16/3	..	5 13 10
British Vac. Cleaner (5/–)	12½	10	13/9	+¼	3 12 9
Brush Ord. (5/–) ..	Nil	6	5/9	..	5 4 3
Callender's	15	15	73/9	..	4 1 9
Chloride Elec. Storage	15	15	73/9	..	4 1 4
Cole, E. K. (5/–) ..	Nil	7	11/9	+3d.	2 19 7
Consolidated Signal	17	17	72/6	..	4 3 8
Crabtree (10/–) ..	17½	17½	30/–	..	5 16 8
Crompton Parkinson Ord. (5/–) ..	30	20	22/6xd	..	4 9 0
E.M.I. (10/–) ..	Nil	6	16/3	–3d.	3 13 9
Electric Construction	10	10	34/6	..	5 16 0
Enfield Cable Ord. .	12½	12½	55/–	..	4 11 0
Elecl. Switchgear (10/–)	10	10	20/–	..	5 0 0
English Electric ..	10	10	41/3	..	4 17 0
Ensign Lamps (5/–)	25	25	16/3	..	7 13 10
Ericsson Tel. (5/–)..	22*	20*	41/3	..	2 8 6
Ever Ready (5/–) ..	40	40	32/6	..	6 3 0
Falk Stadelmann ..	7	7½	22/–	..	6 16 4
Ferranti Pref. ..	7	7	27/6xd	+6d.	5 1 10
G.E.C.:					
Pref.	6½	6½	33/9	..	3 14 2
Ord.	20	17½	83/9	..	4 3 9
Greenwood & Batley	15	13	30/–	..	8 13 4
Hall Telephone (10/–)	10	12½	20/–	..	6 5 0
Henley's (5/–) ..	20	20	22/6	..	4 9 1
4½% Pref. ..	4½	4½	22/6	..	4 0 0
Hopkinsons ..	15	15	48/9	..	6 3 0
India Rubber Pref.	5½	5½	21/3	..	5 3 6
Intl. Combustion ..	32½	30	107/6	..	5 11 6
Johnson & Phillips	15	15	60/–	..	5 0 0
Lancashire Dynamo	20	20	67/6	..	5 18 4
Laurence, Scott (5/–)	15	12½	9/–	..	6 19 0
London Elec. Wire.	7½	7½	28/3xd	+9d.	5 6 2
Lucas, J.	15	15	66/3	–⅛	4 10 8
Mather & Platt ..	10	10	40/–	..	5 0 0
Metropolitan Elec. Cable Pref. ..	5½	5½	21/3	..	5 3 6
Murex	20	20	93/9	..	4 5 3
Pye Deferred (5/–).	25	25	16/3	+⅛	7 13 10
Revo (10/–) ..	5	20	28/9	..	6 19 2
Reyrolle	12½	12½	57/6	..	4 7 0
Siemens Ord. ..	7½	7½	27/6	..	5 9 3
Smith, S. (1/–) ..	50	37½	7/6	..	5 7 2
Strand Elec. (5/–)..	2	4	3,6	..	5 14 4
Switchgear & Cow- and (5/–) ..	15	10	10/–	..	5 0 0
T.C.C. (10/–) ..	Nil	5	15/–	..	3 6 8
T.C. & M.	10	10	42/6	+⅛	4 14 0
Telephone Mfg. (5/–)	9	9	9/3	..	4 17 3
Tube Investments .	23½	20	83/9	..	4 15 6
Vactric (5/–) ..	Nil	Nil	6/–	..	—
Vickers (10/–) ..	10	10	16/3	..	6 3 3
Ward & Goldstone (5/–)	20	20	18/6	..	5 8 3
Westinghouse Brake	10	10	47/6	..	4 4 2
Walsall Conduits (4/–)	55	55	33/9	..	6 10 4
West, Allen (5/–) ..	7½	7½	5/9	..	6 10 5

*Dividends are paid free of Income Tax.

Stocks and Shares (*Continued from page* 803)

£3 18s. 3d., and the interest charge was covered more than nine times over in the last-issued report. Brush Electrical 5½ per cent. preference at 21s. 9d. return £5 1s. 0d. per cent. Lancashire United Transport 5½ per cent. preference are on offer, as to about 2,500 shares, at 27s. 3d., returning at the price a shade over 4 per cent. on the money, and English Electric 6½ per cent. preference, obtainable at 32s. 9d., return £3 19s. 3d.

Telephone Properties

Surprise was aroused six months age when the directors of Telephone Properties, Ltd., decided to defer the dividend due on January 1st. As the eel is said to get used to skinning, so shareholders of Telephone Properties preference may feel the less surprise at the dividend on the 8 per cent. preference, payable on the 31st of next month, being postponed. Ironically enough, the deferring of the dividend has come about owing, indirectly, to the increased profits made by the local Venezuelan company. Telephone Properties hold all the shares in the latter, and taxation on the increased profits fell upon the holding company, with the result that there was not sufficient profit left to pay the dividend on its own preference shares. At the last meeting the chairman, elucidating the position, said he hoped that after segregating part of the assets it would be possible to resume dividend payments on the preference shares. The price of the ordinary shares remains unchanged at 10s.

Dividend Limitation

The dividend announcements nowadays usually repeat those of twelve months ago. Comment has been aroused, however, by the statement of the Chancellor of the Exchequer to the effect that he does not consider it desirable for companies to increase their dividends as compared with those of the pre-war period. The obvious answer to this is that the income tax then prevailing, 5s. 6d. in the £, is very different from the 10s. in the £ that is the current rate. That shareholders should be debarred from participating in the increased profits of their undertakings which are available for distribution, seems to be rather hard in times when the cost of living has so substantially increased.

CONTRACT INFORMATION

Accepted Tenders and Prospective Electrical Work

Contracts Open

Where "Contracts Open" are advertised in our "Official Notices" section the date of the issue is given in parentheses.

Normanton.—July 11th. Electricity Department. Supply, delivery and laying of 440 yd. of e.h.v. cable and supply, delivery and fixing of one e.h.v. switch cubicle with instruments. Specifications from electrical engineer, Electricity Department. (See this issue.)

Plymouth.—July 7th. Electricity Supply Department. Portable loading conveyor. (See this issue.)

South Africa.—SALISBURY.—August 26th. Electricity Supply Commission. Plant for Umniati River generating station. (Contract 31/1942.)

Wolverhampton.—July 1st. West Midlands Joint Electricity Authority. 11,000-V overhead transmission line and underground cables. (June 5th.)

July 13th. H.v. and l.v. cables. (See this issue.)

Orders Placed

Hertfordshire.—Emergency Committee. Accepted. Shelter lighting and heating.—Bishop's Stortford (£196).—Northmet Co.; Hemel Hempstead (£31).—Buchanan & Curwen.

London.—POPLAR. Electricity Committee. Accepted. Boiler plant replacements (£2,071).—International Combustion.

METROPOLITAN WATER BOARD. Accepted. Electric pumps (£4,600).—A. Waddington & Son.

Manchester.—Health Committee. Accepted. Internal telephone system extensions at Withington Hospital.—New Era Time & Telephone Systems.

Warrington.—Electricity Committee.—Extension of contract for transformers for a further twelve months.—Electric Construction Co.

Contracts in Prospect

Particulars of new works and building schemes for the use of electrical installation contractors and traders. Publication in this section is no guarantee that electrical work is definitely included. Alleged inaccuracies should be reported to the Editors.

Aintree.—Temporary school accommodation for Lancashire Education Committee (£1,241); John Lucas & Son (Builders), Ltd., Eccleston Street, Prescot.

Altrincham.—Additions to premises, Manchester Road; Manchester & Salford Equitable Co-operative Society, Ltd., Downing Street, Manchester.

Ancoats.—Additions to box making works; J. Bennett & Sons, Ltd., engineers, 16, Deansgate, Manchester.

Bacup.—Canteen, India Mills; J. Hoyle & Co., Ltd., cotton spinners, 50, Piccadilly, Manchester.

Barrow-in-Furness. — Brewery additions, Cavendish Street; R. F. Case & Co., Ltd.

Birmingham.—Nurseries and A.R.P. works (£68,000); city engineer.

Bletchley.—British Restaurant for U.D.C.; A. Bates, surveyor, Council offices.

Bolton-on-Dearne (Goldthorpe).—Memorial hall for Rennet Trust Fund Committee; Councillor G. B. Edwards, chairman.

Bredbury and Romiley.—British Restaurant at Bredbury for U.D.C.; surveyor, Council offices, George Lane.

Bridgwater.—Pumping station for Somerset Rivers Catchment Board; Engineer's Department, Watergate House, West Quay, Bridgwater.

Chertsey.—Community centre; W. V. Davies, surveyor, Council offices.

Chorlton-on-Medlock.—Works canteen; Drury & Gomersall, architects, 11, Imperial Buildings, Oxford Road, Manchester.

Eccles.—Central cooking depot, Ellenbrook Road, Worsley; borough surveyor, Town Hall.

Esher.—British Restaurants, King George's Hall (£1,400) and Hinchley Wood, for U.D.C.; surveyor, Council offices, 1, High Street.

Glasgow.—Canteen extensions; Harland & Wolff, Ltd.

Additions to garage; Ernest Sanderson.

Canteen; Gleniffer Engines, Ltd.

Rest room; John M'Donald & Co.

Additions, Clydeholm Shipbuilding Yard; Barclay, Curle & Co., Ltd.

Gloucestershire. — School (250 children), Churchdown; county architect, Shire Hall, Gloucester.

Greenock.—Reconstruction of shops; director of housing.

Guisborough.—Parish hall (£1,000); clerk, Parish Council.

Hereford.—Office additions; Pye Bros., Ltd.

Paint shop for Brook Bros., Ltd.; W. W. Robinson & Son.

Hulme.—Conversion of premises into workshops; P. Cummings, architect, 3, Appleby Lodge, Wilmslow Road, Rusholme.

Llandudno. — Additional wing for War Memorial Welfare Centre Maternity Home (£1,200); G. A. Humphreys, chairman, Ardwy-Orme.

British Restaurant for U.D.C.; surveyor, Town Hall.

London.—School hutments (£42,000) and school repairs (£23,500); L.C.C. architect.

Manchester.—Additions to works canteen and kitchen; McCutcheon & Walsingham, architects, 1180A, Chester Road, Stretford.

Stretford.—Offices and store, Stretford Road; D. Macdonald, Ltd.

Offices, Ashburton Road; British Electron, Ltd.

Cable testing shop, Trafford Park Road; W. T. Glover & Co., Ltd.

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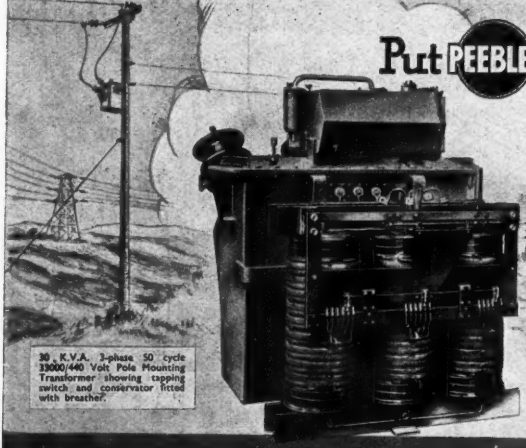

30 K.V.A. 3-phase 50 cycle 11000/440 Volt Pole Mounting Transformer showing tapping switch and conservator fitted with breather.

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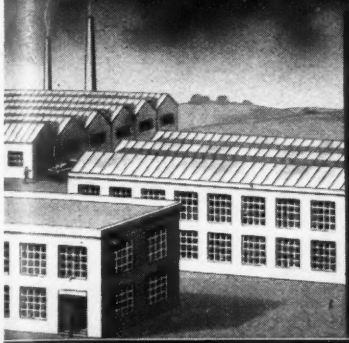

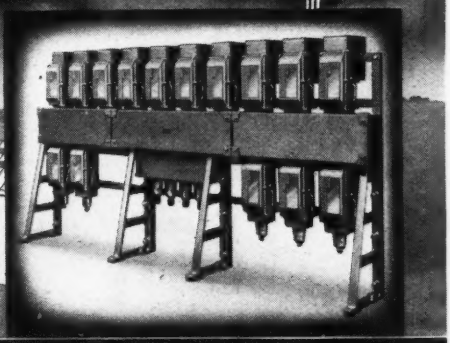

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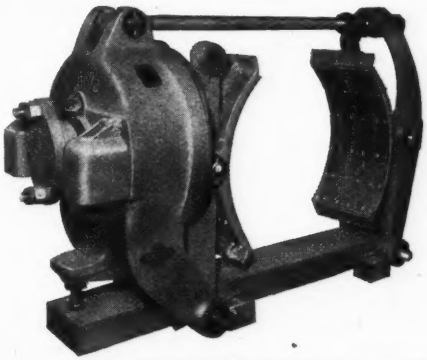
Lifting magnets, Separators, Clutches, Solenoids, etc.



IGRANIC ELECTRIC CO. LTD.
LONDON • BEDFORD

Write for Leaflets giving details of our Magnetic specialities

ELECTRIC MOTOR POLISHERS

A. C. 4 BEARINGS
400 VOLTS, 3 PHASE
50 CYCLES.
1, 2, 3, 4 AND 5 H.P.

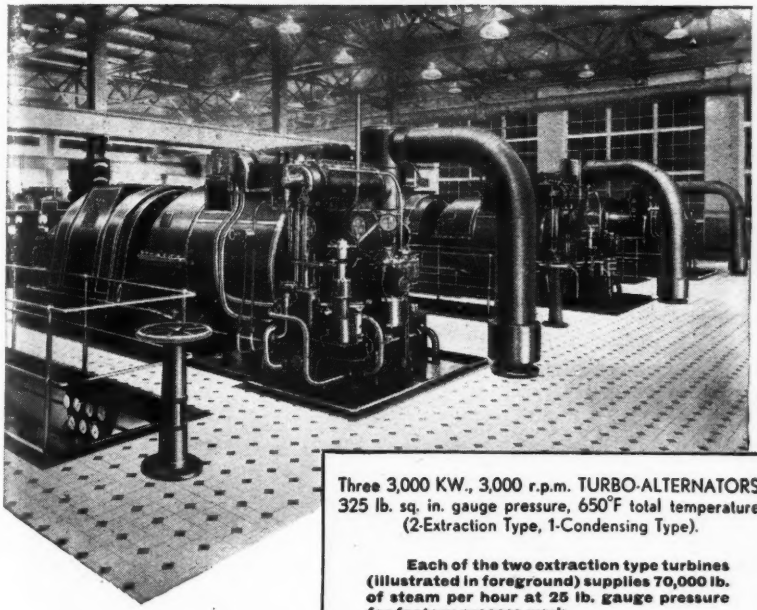
DELIVERY—
IMMEDIATELY ON RECEIPT OF MACHINE TOOL LICENCE AND CONTRACT NUMBER

for IMMEDIATE DELIVERY!!

W. CANNING & CO. LTD.
GREAT HAMPTON STREET
BIRMINGHAM · 18

B T-H

TURBO-ALTERNATORS
FOR INDUSTRIAL DUTY



Three 3,000 KW., 3,000 r.p.m. TURBO-ALTERNATORS 325 lb. sq. in. gauge pressure, 650°F total temperature (2-Extraction Type, 1-Condensing Type).

Each of the two extraction type turbines (illustrated in foreground) supplies 70,000 lb. of steam per hour at 25 lb. gauge pressure for factory process work.

Three BTH 4,000 KW. Turbine Sets are also installed in this power-house.

We make TURBINE PLANT of any type and any capacity

BTH products include all kinds of electric plant and equipment; and Mazda, Mazda fluorescent, Mercra, and Sodra lamps.

BTH

THE BRITISH THOMSON-HOUSTON CO., LTD.
CROWN HOUSE, ALDWYCH, LONDON, W.C.2

A 3219

AEI

METAL-CLAD UNIT-TYPE DISTRIBUTION-GEAR WITH CONTACTOR-UNITS

Reyrolle contactor-units, rated at 15 amperes and upwards, are available for over-current protection in standard HH distribution-boards, and Reyrolle high-breaking-capacity cartridge-fuses, in series with the contactors in separate interlocked units, provide adequate short-circuit protection. The combination is suitable for many purposes, such as direct starting of motors, and remote-control units are available. For local control of contactors, push-buttons are mounted in the lids of the units.

A 50-ampere electrically-held-on contactor-unit fitted with three over-current coils and double-acting motor-starting dashpots.

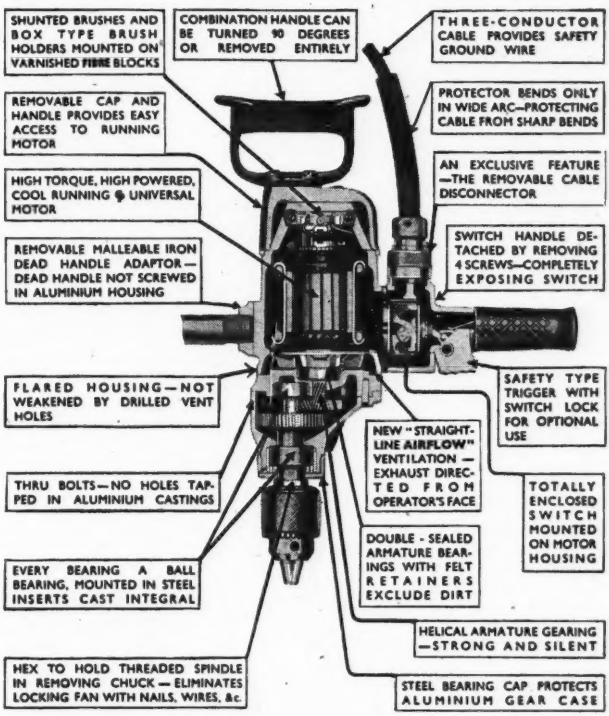
A remote-control unit, fitted with an ammeter.

REYROLLE & CO LTD

HEBBURN-ON-TYNE ENGLAND

IF YOU SECTIONALIZED ONE OF YOUR ELECTRIC DRILLS

WOULD YOU FIND ALL THESE FEATURES?


SHUNTED BRUSHES AND BOX TYPE BRUSH HOLDERS MOUNTED ON VARNISHED FIBRE BLOCKS
COMBINATION HANDLE CAN BE TURNED 90 DEGREES OR REMOVED ENTIRELY
THREE-CONDUCTOR CABLE PROVIDES SAFETY GROUND WIRE
REMOVABLE CAP AND HANDLE PROVIDES EASY ACCESS TO RUNNING MOTOR
PROTECTOR BENDS ONLY IN WIDE ARC—PROTECTING CABLE FROM SHARP BENDS
HIGH TORQUE, HIGH POWERED, COOL RUNNING CP UNIVERSAL MOTOR
AN EXCLUSIVE FEATURE —THE REMOVABLE CABLE DISCONNECTOR
REMOVABLE MALLEABLE IRON DEAD HANDLE ADAPTOR — DEAD HANDLE NOT SCREWED IN ALUMINIUM HOUSING
SWITCH HANDLE DETACHED BY REMOVING 4 SCREWS—COMPLETELY EXPOSING SWITCH
FLARED HOUSING—NOT WEAKENED BY DRILLED VENT HOLES
SAFETY TYPE TRIGGER WITH SWITCH LOCK FOR OPTIONAL USE
NEW "STRAIGHT-LINE AIRFLOW" VENTILATION — EXHAUST DIRECTED FROM OPERATOR'S FACE
THRU BOLTS—NO HOLES TAPPED IN ALUMINIUM CASTINGS
TOTALLY ENCLOSED SWITCH MOUNTED ON MOTOR HOUSING
DOUBLE-SEALED ARMATURE BEARINGS WITH FELT RETAINERS EXCLUDE DIRT
EVERY BEARING A BALL BEARING, MOUNTED IN STEEL INSERTS CAST INTEGRAL
HELICAL ARMATURE GEARING —STRONG AND SILENT
HEX TO HOLD THREADED SPINDLE IN REMOVING CHUCK — ELIMINATES LOCKING FAN WITH NAILS, WIRES, &c.
STEEL BEARING CAP PROTECTS ALUMINIUM GEAR CASE

The above is a sectional view of CP Model 935 1/2" Heavy Duty and 945 5/8" Standard Duty Drills.

CP

GRAMS CAULKING FRASERBURGH

PHONE FRASERBURGH 287

UNIVERSAL ELECTRIC

DRILLS · REAMERS · TAPPERS · SCREWDRIVERS
NUTRUNNERS · GRINDERS · SANDERS · BUFFERS

Advt. of:—*The Consolidated Pneumatic Tool Company Ltd.* · Regd. Office:—*232 Dawes Road, London, S.W.6*

A GLOWING TRIBUTE!

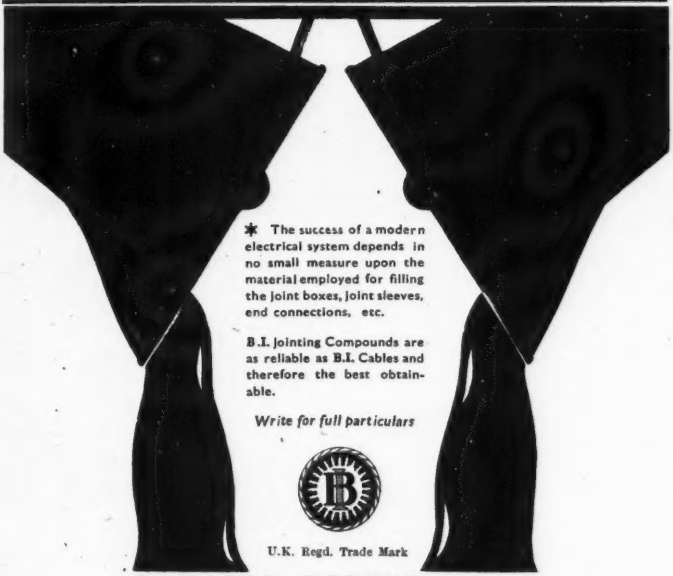
nearly 3/4 million

RADIANT *Red Ring* BOILING PLATES

already supplied

METROPOLITAN-VICKERS ELECTRICAL CO. LTD.
TRAFFORD PARK MANCHESTER

COMPOUNDS



* The success of a modern electrical system depends in no small measure upon the material employed for filling the joint boxes, joint sleeves, end connections, etc.

B.I. Jointing Compounds are as reliable as B.I. Cables and therefore the best obtainable.

Write for full particulars

U.K. Regd. Trade Mark

YOU CAN DEPEND UPON

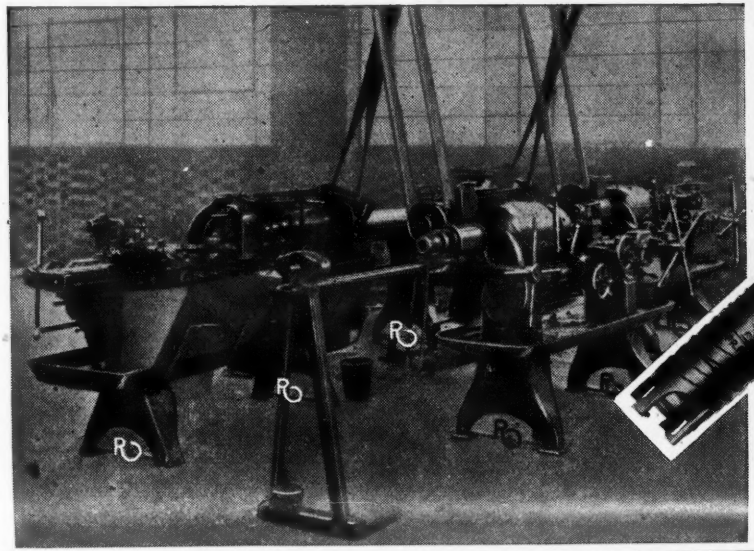
B.I. JOINTING COMPOUNDS

BRITISH INSULATED CABLES LTD.

PRESCOT — LANCS. Tel No: PRESCOT 6571

In the building and equipment of large and small Factories & Workshops hundreds of thousands of Rawlplug Fixing Devices are being used

RAWLBOLTS



RAWLBOLTS

For the fixing of machines, engines, shafting and all fixing jobs calling for bolts, the Rawlbolt method is recognised as the quickest, easiest and most secure. It is the most economical, too, because it saves so much time.

There are two types of Rawlbolts —(a) Bolt Projecting type, where the bolt and expanding shell are placed in the hole together; (b) Loose Bolt type, where the bolt may be inserted—through the machine base — after the Rawlbolt shell has been dropped in position. Both types are supplied in stock sizes up to ¾" whit.

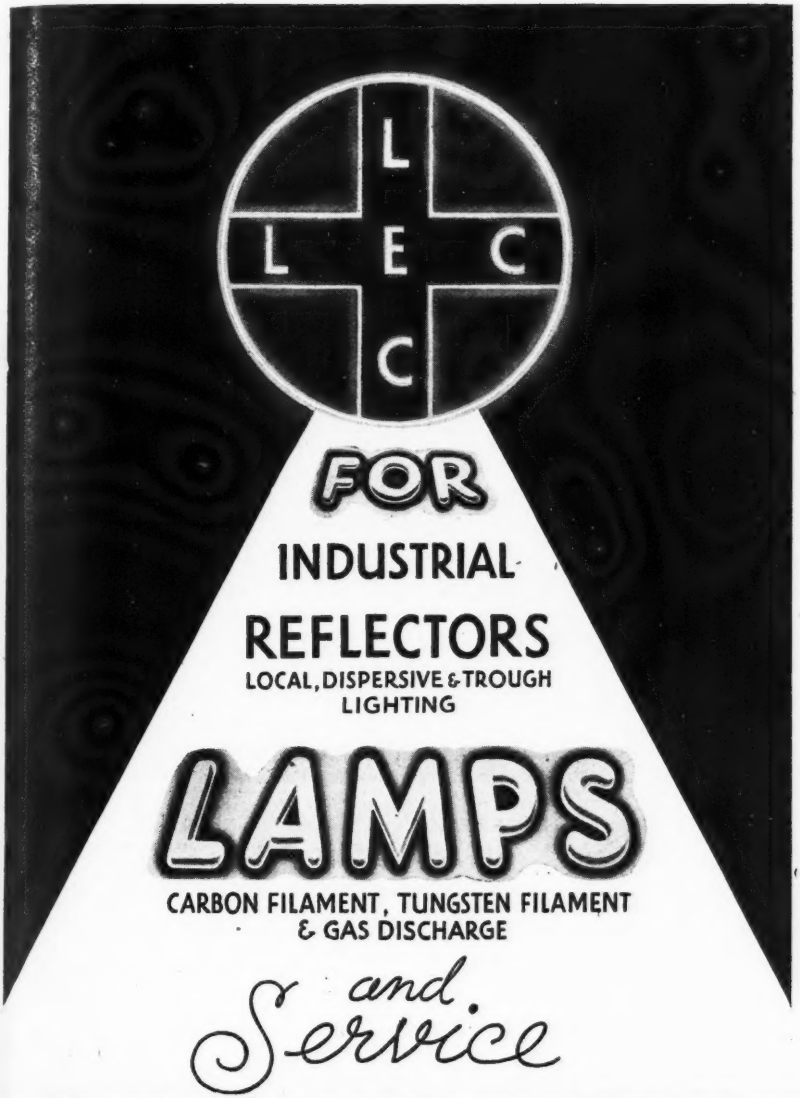
RAWLPLUG TOOLS

There is a Rawlplug boring tool suitable for boring holes of all sizes in all materials. These tools, manufactured from a special steel produced to our own secret formula, were originally introduced to make the holes to accommodate Rawlplug Fixing Devices, but the range has been extended so that today they are used for many other purposes.

Full details of Rawlbolts and Rawlplug Tools will gladly be supplied on request to:—

THE RAWLPLUG CO. LTD.
Cromwell Road, London, S.W.7

B250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L E C
C
FOR
INDUSTRIAL
REFLECTORS
LOCAL, DISPERSIVE & TROUGH
LIGHTING
LAMPS
CARBON FILAMENT, TUNGSTEN FILAMENT
& GAS DISCHARGE
and
Service
LONDON ELECTRICAL COMPANY (BLACKFRIARS) LTD
WATERLOO 5620 Ext. 18.
LONDON · S·E·1

6.46

MAP SERIES
No. 3
COPYRIGHT DESIGN

PETTERS LTD.
LOUGHBOROUGH
ENGLAND

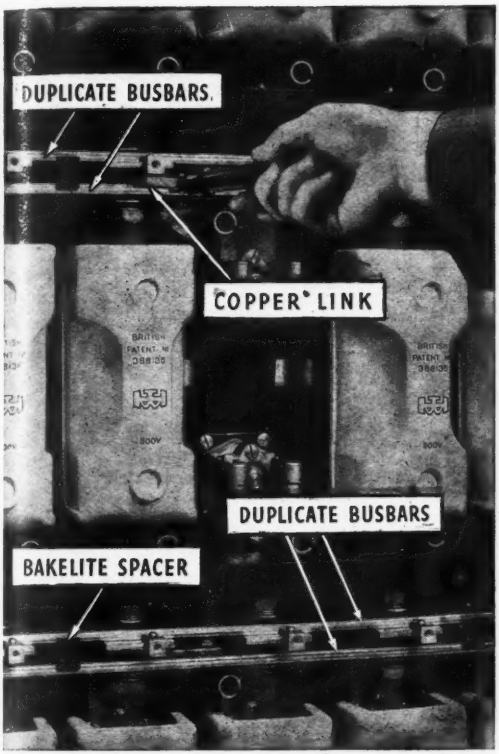
PETTER Engines have always played a prominent part in supplying the power requirements of the primary industries of South Africa. We look forward with confidence to the future and to renewing valued and close associations through our good friends and representatives :

THE BRITISH GENERAL ELECTRIC CO. LTD.
Magnet House, c/o Riebeek & Lower Burg Street, CAPETOWN
P.O. Box 42, 20 *Queen Street, PORT ELIZABETH*

FRASER & CHALMERS (S.A.) LTD.
P.O. Box 619, *JOHANNESBURG, TRANSVAAL*
P.O. Box 290, *Clifford House, Main Street, BULAWAYO, RHODESIA*

LLOYDS & CO. (S.A.) LTD.
P.O. Box 239, *Lloyds Buildings, EAST LONDON*

REID BROS. (S.A.) LTD.
82 *Smith Street, DURBAN, NATAL*



Duplicate Busbars in HENLEY Selective type Distribution Pillars make it a simple matter to change over a circuit without interrupting the supply. A copper link is inserted between the busbar connector and the busbar to be connected in the circuit. The link completing the original circuit is then withdrawn. Both the insertion and withdrawal are effected by means of the insulated handle provided.

TRADE MARK

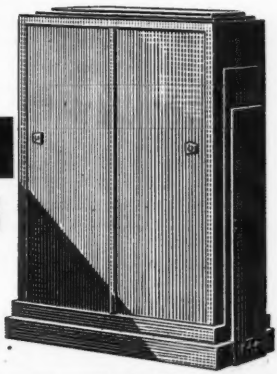
HENLEY

SELECTIVE TYPE

DISTRIBUTION PILLARS AND PANELS

for

Selectivity & Simplicity



W. T. HENLEY'S TELEGRAPH WORKS CO. LTD.

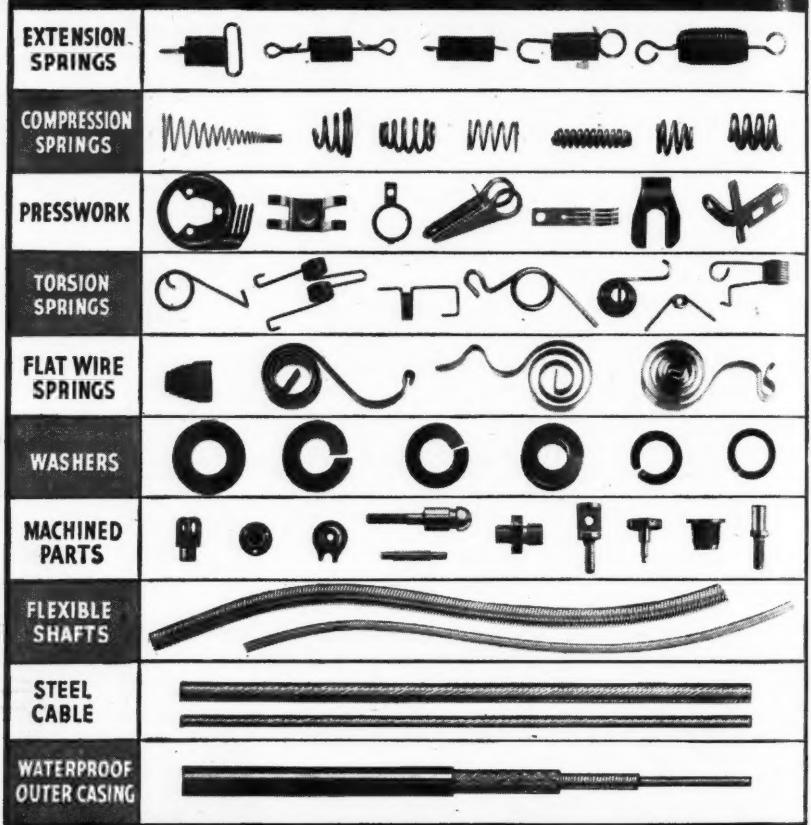
MILTON COURT · WESTCOTT · DORKING · SURREY

PHONE: DORKING 3241 (10 LINES)
TELEGRAMS: HENLETEL, DORKING

UNDER ONE ROOF..

Daily there flows a never-ending stream of immensely varied precision products from underneath the roof tree of "TERRYS OF REDDITCH." Below is shown a tiny cross-section . . . to list and illustrate them all would be a difficult task.

From a featherweight tiny watch spring to a powerful brake cable . . . from a gramophone needle to a pressed steel spanner, Terry's make them all, in all shapes and sizes. They can help you with your spring or presswork problem.
Write for a copy of their ~~*wa*~~ *time catalogue*



TERRY'S of REDDITCH

★MOTOR & MOTOR CYCLE TOOLS · ACCESSORIES ALSO DOMESTIC ACCESSORIES

ESTABLISHED · 1855

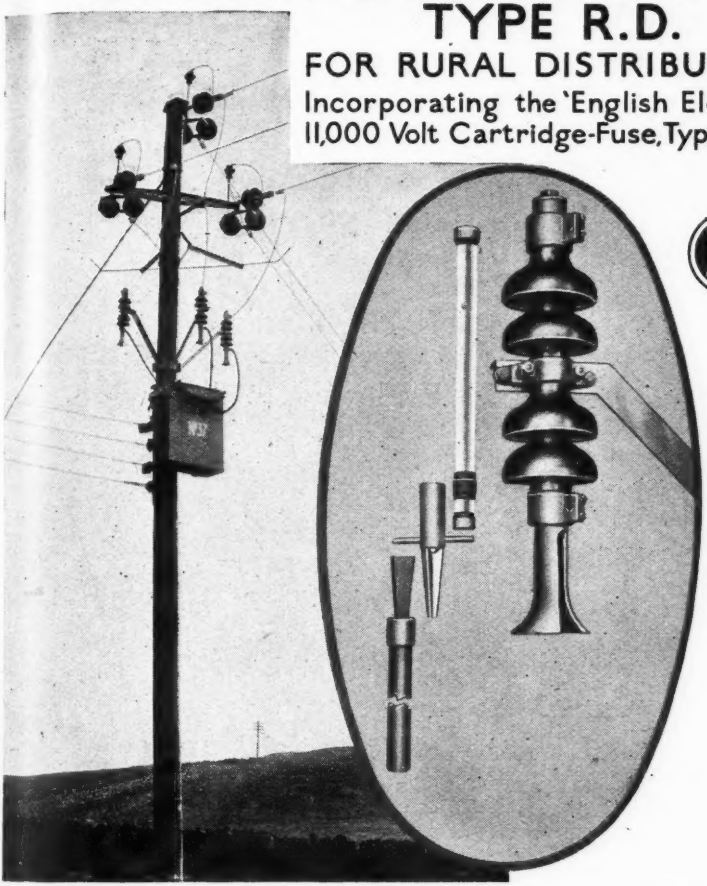
HERBERT TERRY & SONS LTD., REDDITCH • *Also at London, Birmingham and Manchester*

'ENGLISH ELECTRIC' E.H.T. FUSE UNIT

TYPE R.D.

FOR RURAL DISTRIBUTION

Incorporating the 'English Electric' 11,000 Volt Cartridge-Fuse, Type E.30.



Years of satisfactory service have established our claim to unsurpassable performance

MANY THOUSANDS IN USE!

THE ENGLISH ELECTRIC COMPANY LIMITED

STAFFORD

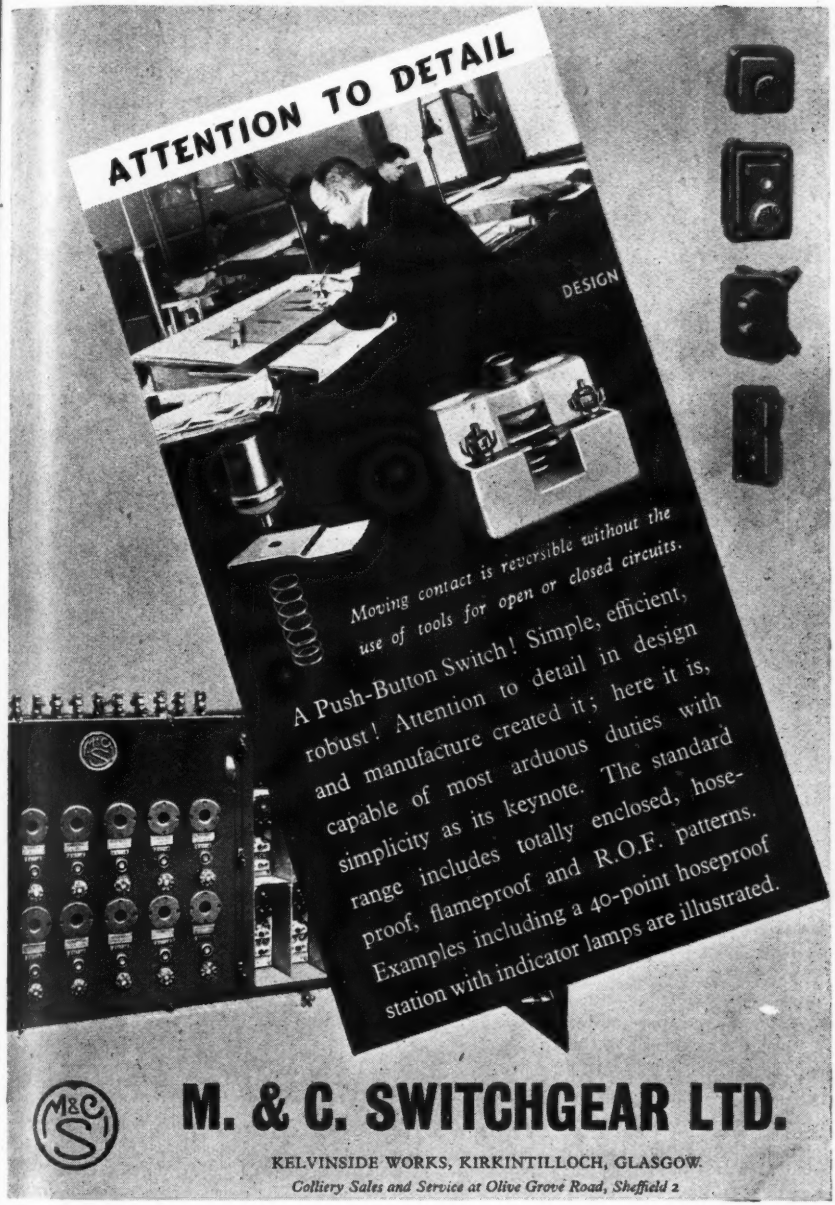
1898 — 1942

From an old engraving.]

WHAT a dainty operation the winding of cotton for braiders appeared to be in 1898, and what a very different complexion is thrown on the process by the inset picture! Thus in one process alone the progress achieved during the past 44 years is dramatically portrayed.

Standard POWER CABLES

Advertisement of Standard Telephones and Cables Limited, North Woolwich, E.16

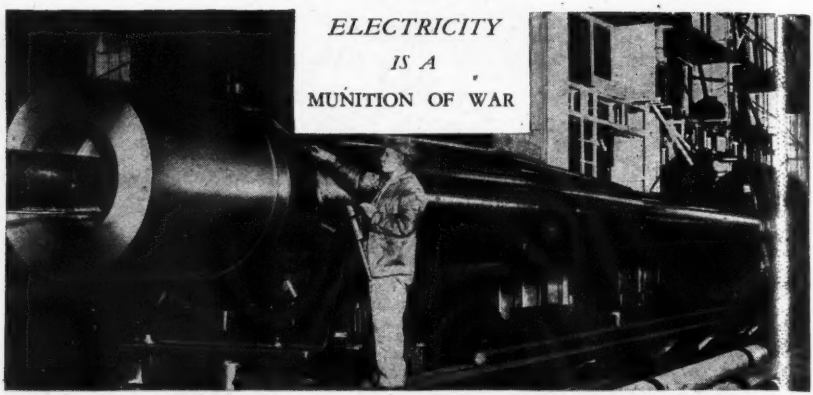

ATTENTION TO DETAIL
DESIGN
Moving contact is reversible without the use of tools for open or closed circuits.
A Push-Button Switch! Simple, efficient, robust! Attention to detail in design and manufacture created it; here it is, capable of most arduous duties with simplicity as its keynote. The standard range includes totally enclosed, hose-proof, flameproof and R.O.F. patterns. Examples including a 40-point hoseproof station with indicator lamps are illustrated.

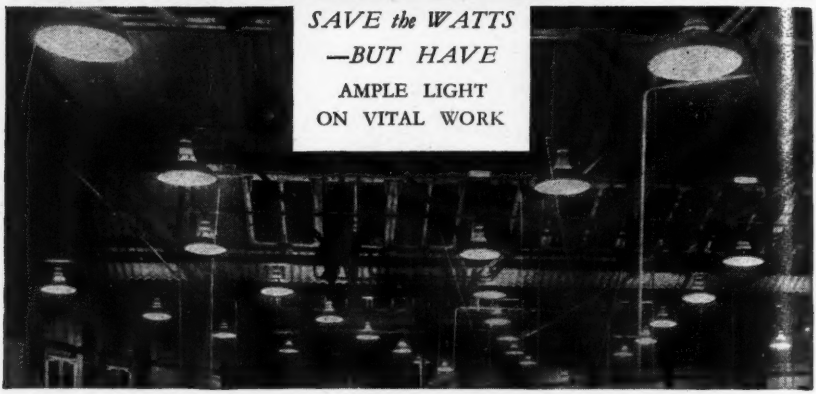
M. & C. SWITCHGEAR LTD.

KELVINSIDE WORKS, KIRKINTILLOCH, GLASGOW.

Colliery Sales and Service at Olive Grove Road, Sheffield 2

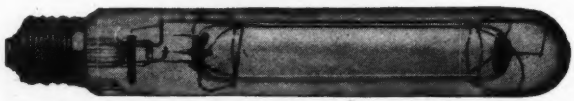
LONDON OFFICE : 36 VICTORIA STREET, WESTMINSTER, S.W.1 Phone : ABBey 6454





The call is for economy in power to conserve the country's coal. It is in your own and the country's interest to cut down the watts used for lighting, provided you do not cut down the light essential for production. Crompton Mercury Vapour Discharge Lamps will achieve this for you. They are extremely economical in current consumption and give a quality of light that is highly efficient for most industrial work. They have longer life, too, and so reduce the labour on lamp maintenance. From every point of view it pays to use Crompton Discharge Lamps.

CROMPTON
MERCURY VAPOUR
DISCHARGE LAMPS



LET THE CROMPTON LIGHTING SERVICE PLAN *YOUR LIGHTING*

CROMPTON PARKINSON LTD., ELECTRA HOUSE, LONDON, W.C.2.

Telephone: Temple Bar 5911. *Telegrams: CROMPARK, ESTRAND, LONDON*

DISTRENE REGISTERED

(POLYSTYRENE)

in sheets, rods and tubes ★

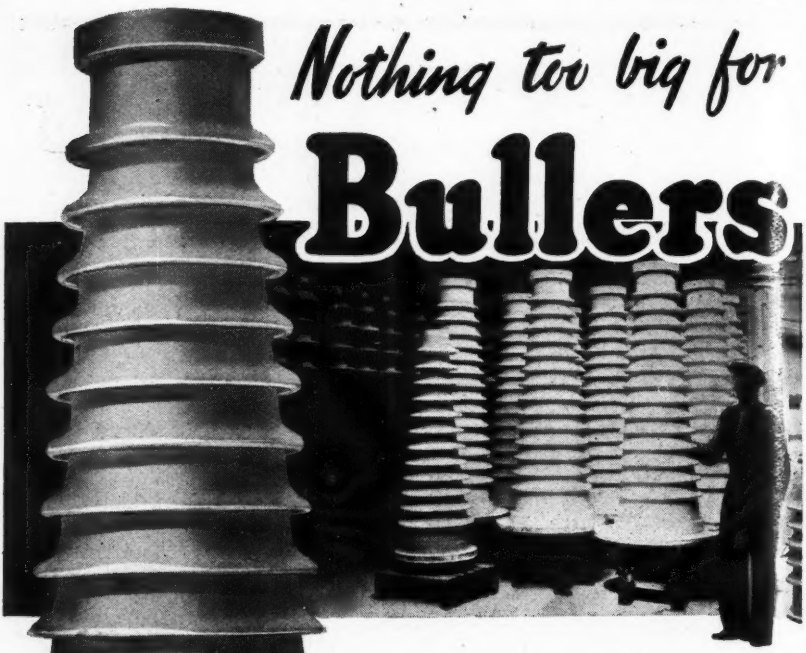
THE IDEAL PLASTIC FOR HIGH FREQUENCY ELECTRICAL INSTALLATION

for particulars of sizes and prices apply :

BX Plastics Ltd., London, E.4 and elsewhere

LHS/BX/150

Nothing too big for Bullers

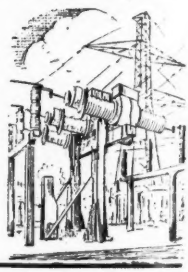


Size, of course, isn't everything, but to produce E.H.T. Bushings of this magnitude implies specialised organisation.

The High Tension Circuit Breaker Bushings shown here are just another example of Bullers' capacity for tackling an outsize job.

Big as they are, they are all in the day's work for our Research Laboratories and Works. And to ensure absolute accuracy and interchangeability in assembly, we manufacture Complete Units, both porcelain and ironwork in our own plants.

Whatever your requirements — whether small and intricate or on the large scale as here — make sure by specifying Bullers.



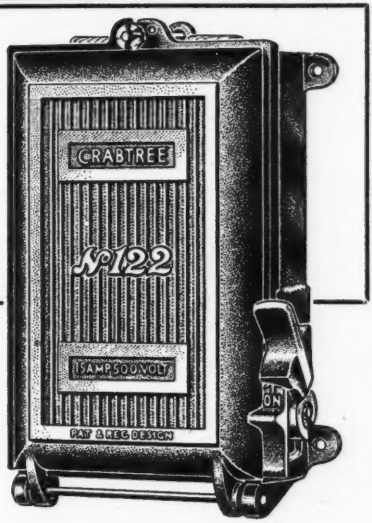
BULLERS LTD.

THE HALL, OATLANDS DRIVE, WEYBRIDGE, SURREY

Telephone : Walton-on-Thames 2451

Manchester Office : 196 Deansgate, Manchester

CRABTREE 500 Volt Switch and Fusegear



The Crabtree range of weatherproof and non-weatherproof switch and fusegear successfully meets the demand for competitively priced ironclad gear suitable for heavy-duty industrial use at pressures of up to 500 volts.

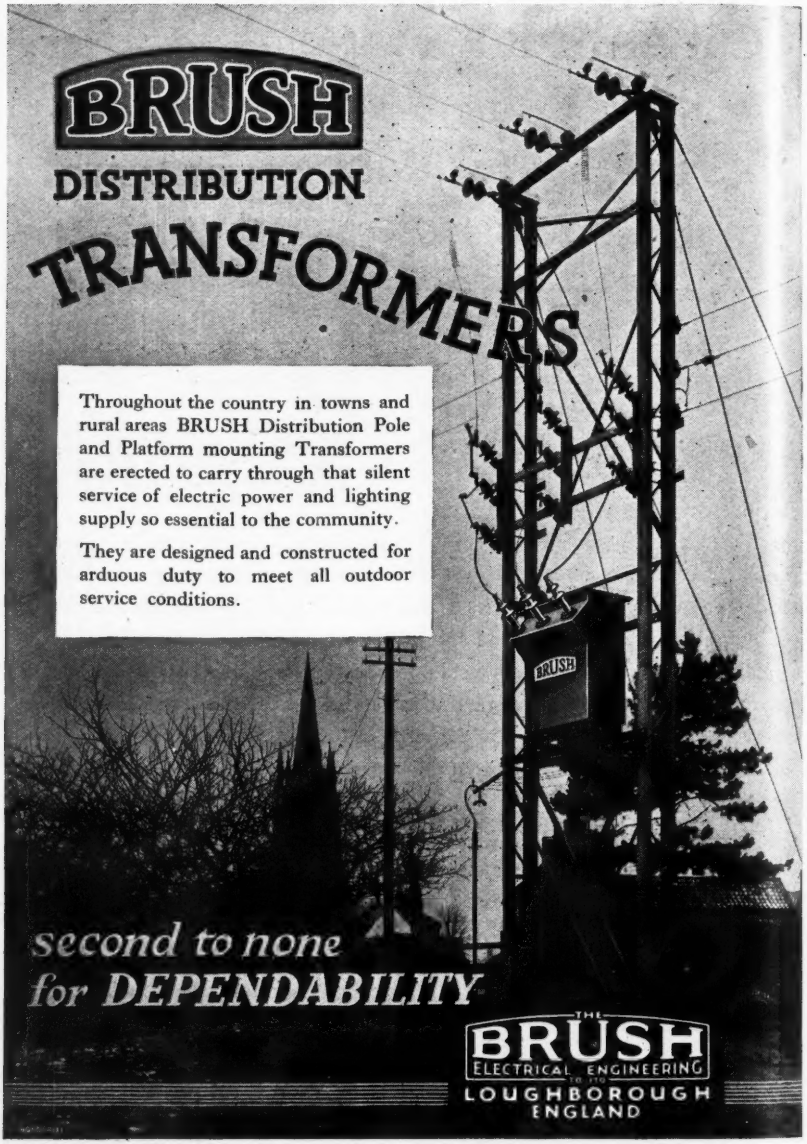
In the general design of the mechanism and the switch and fuse components, both patterns are similar, although the weatherproof units possess certain features—such as conduit entries at top and bottom of the case, and a special watertight packing gasket round the cover—which are peculiar to the range. In all units, though, whether switches or switch-fuses, a sheet-steel plate is cast into the box for carrying the spindle and spring bearings and to withstand the mechanical shocks occasioned by the recoil of the switch spring. The economic advantages of a cast-iron box are in this way combined with the extra mechanical strength and accuracy afforded by a steel stamping. Another feature to which considerable thought has been given is the bar carrying the moving switch arms. This is a steel spindle upon which a laminated insulating material is moulded by a unique process giving the greatest rigidity with the highest electrical properties.

This advertisement does not imply that the products mentioned are necessarily available either in the United Kingdom or for export to any country overseas.

CRABTREE

A · NAME · SYNONYMOUS · WITH · PROGRESS · IN · ACCESSORIES · AND · SWITCHGEAR

"Crabtree" (Registered) C553/129 *Advt. of J. A. Crabtree & Co. Ltd., Walsall, England*


BRUSH
DISTRIBUTION
TRANSFORMERS
Throughout the country in towns and rural areas BRUSH Distribution Pole and Platform mounting Transformers are erected to carry through that silent service of electric power and lighting supply so essential to the community.
They are designed and constructed for arduous duty to meet all outdoor service conditions.
BRUSH
second to none
for DEPENDABILITY
THE BRUSH ELECTRICAL ENGINEERING CO. LTD.
LOUGHBOROUGH ENGLAND

4.175

Science and Industry!

INDUSTRIAL PROCESSES ARE USUALLY THE RESULT OF SCIENTIFIC RESEARCH AND DEVELOPMENT.

An outstanding example is the new source of Light for Industry—

the SIEMENS SIERAY

FLUORESCENT TUBES

MADE THROUGHOUT IN ENGLAND

WRITE FOR LIST Nº 976

Advt. of SIEMENS ELECTRIC LAMPS AND SUPPLIES LIMITED, 38/39 Upper Thames Street, London, E.C.4

Branches at-Belfast, Birmingham, Bristol, Cardiff, Dublin, Glasgow, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Nottingham, Sheffield.

FRY'S SOLDERS AND SOLDERING DATA

FLUXES

Despite the importance of the subject little reliable information has been published on soldering fluxes.

In this series of advertisements our object is to promote a better understanding of the subject so that maximum results can be obtained in soft soldering.

A pellet of solder melted on a piece of apparently clean copper will ball up into globules like water on a greasy plate. The film of oxide or grease must be removed from the copper to permit the solder to spread and to alloy. That is the purpose of a soldering flux.

There are two main classes, safety fluxes and active fluxes.

SAFETY FLUXES

Alcho-re exerts only a slight cleansing action so that reasonably clean surfaces are necessary to start with; having little chemical activity it cannot corrode the joint and can be used with safety on electrical and radio connections, delicate instrument work, paper insulated cables and armatures.

Oleic Acid No. 9. A safety flux for use on tinplate and clean steel; suitable for bit soldering and dipping work.

Oleic Acid No. 10. Generally recommended for tinplates only, but not for steel, it has greater wetting and spreading power than No. 9.

Oleic acid fluxes are not suitable for electrical work; they can be used on either copper or brass provided the residue is removed by washing.

ACTIVE FLUXES

Most fluxes on the market are of the active type and are suitable for all work unless it is necessary to ensure complete freedom from the possibilities of corrosion. Prominent in this group are Frysol Fluid, Frysol Salt and Frysol Soldering paste—*they speed up the work and save solder.*

FRY'S METAL FOUNDRIES LTD.

LONDON

AND AT MANCHESTER, BRISTOL, GLASGOW AND DUBLIN

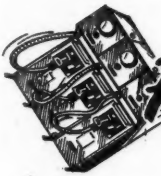
No. 34

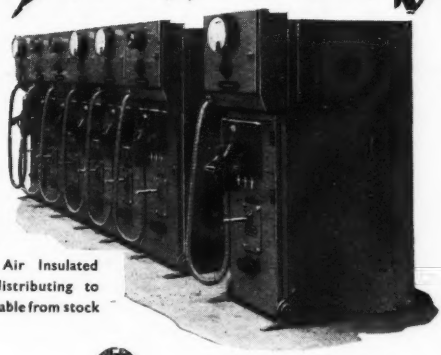
If you want a quick supply-

get a B.V. unit

FROM

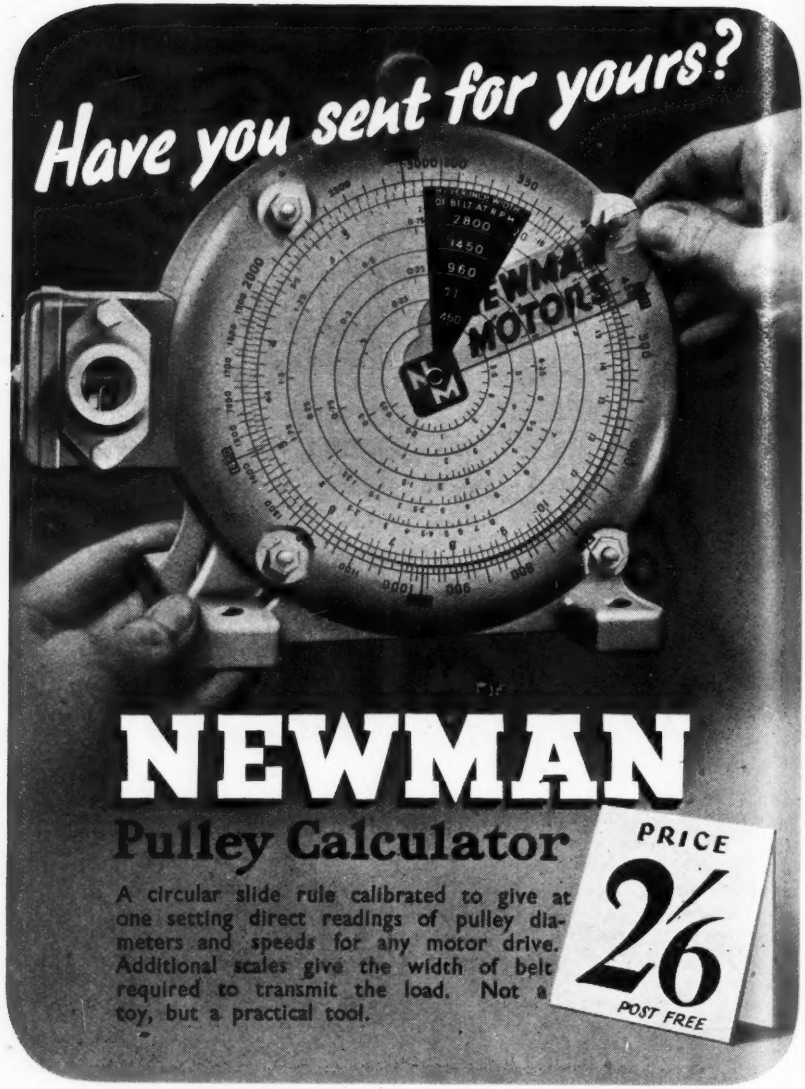
Ferguson, Pailin Ltd.



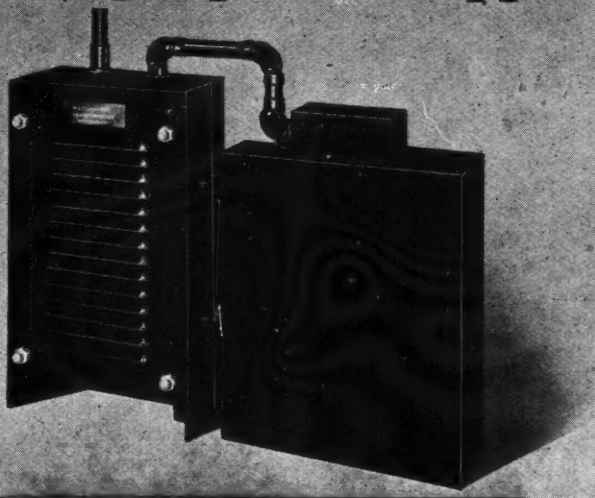


Light Metalclad Air Insulated Switchgear for distributing to Substations is available from stock

L467


Have you sent for yours?
NEWMAN
Pulley Calculator
A circular slide rule calibrated to give at one setting direct readings of pulley diameters and speeds for any motor drive. Additional scales give the width of belt required to transmit the load. Not a toy, but a practical tool.
PRICE
2/6
POST FREE

Three-phase INDUSTRIAL MOTOR OPERATION from single-phase supplies



All the advantages of three-phase multi-motor operation for works drives can be realised even when only a single-phase supply is available, by using the Westinghouse *Static* Phase Converter. No attention . . . no maintenance . . . no renewals.

Westinghouse STATIC PHASE CONVERTER

Write for Descriptive Pamphlet, No. IIM (price 1/-) to Dept. E.R.—

Westinghouse Brake & Signal Co. Ltd., Pew Hill House, Chippenham, Wilts

An improbability

The problem of high temperature operation in electrical machinery has always been very evident to the manufacturer of the insulated conductor, and the many years of research given to the perfection of a wire insulation able to resist heat while maintaining other desirable electrical properties resulted in the trial appearance of a "Lewcos" glass insulated wire.

that became a fact

Such a departure in winding wires was regarded by some, perhaps not unnaturally, as a doubtful hope built on glass—it did not seem possible that a wire could be insulated with glass fibre yet have flexibility—space factor and normal handling properties comparable with other types of insulated wires generally used for coil winding.

and now a success

That was three years ago, but since that time practical experience has proved that "Lewcoglass" insulated wire can be used under normal winding shop conditions, and that its high di-electric strength, good space factor and flexibility has enabled designers to make improvements on electrical machinery and apparatus which have to withstand high temperatures.

"Lewcoglass" is now available in all sizes of round wire between .010" and .144".

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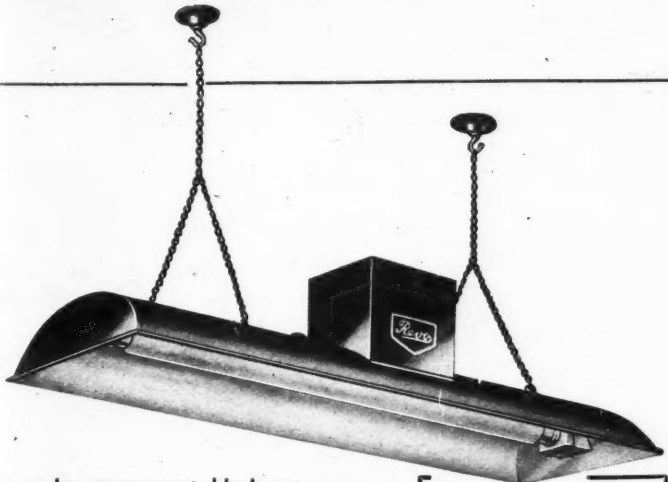

even under permanent black-out conditions, can now be assured by the installation of **REVO "FLUOROLITE" REFLECTORS** with 80-watt Mercury Fluorescent Tubular Lamps. The employment of these Units banishes visual strain, increases production and reduces running costs.

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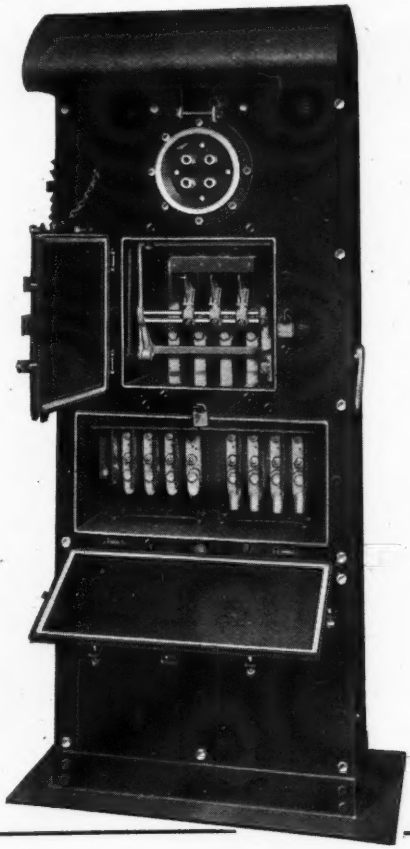

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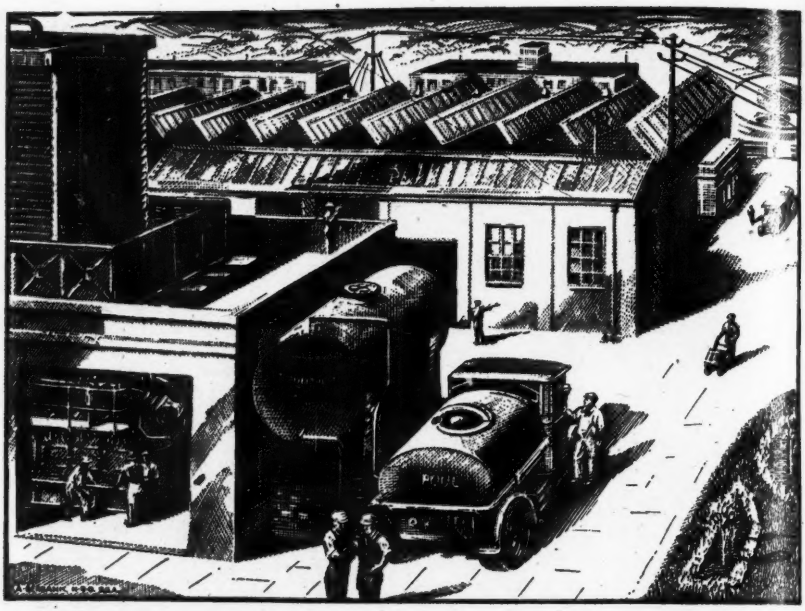

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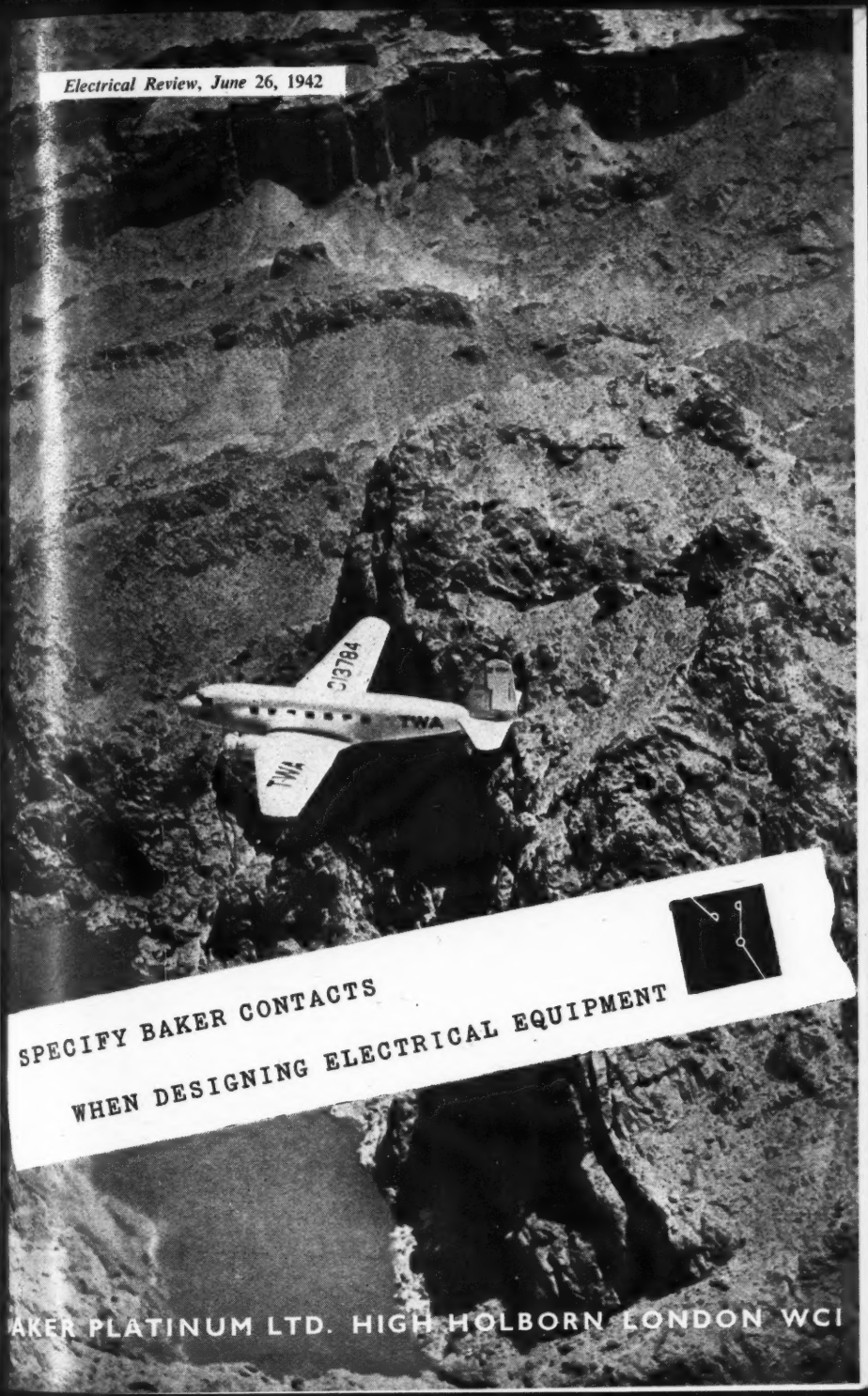
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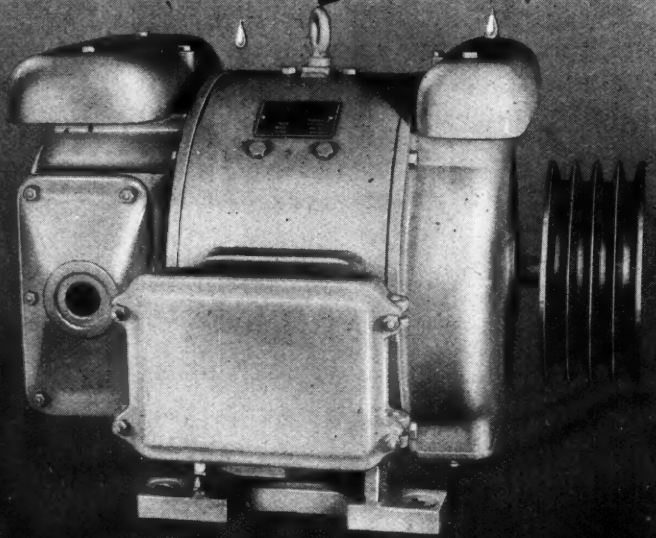

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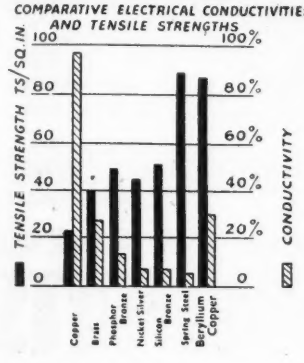

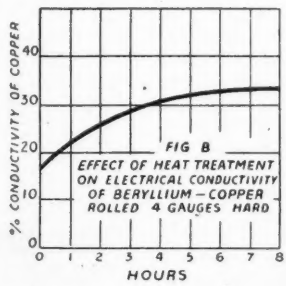

FIG 8
EFFECT OF HEAT TREATMENT ON ELECTRICAL CONDUCTIVITY OF BERYLLIUM–COPPER ROLLED 4 GAUGES HARD

THE accompanying diagrams clearly illustrate the outstanding physical properties and advantages of the use of Telcon Beryllium Copper Alloy (Cu Be 250) especially in the radio and electrical fields. Possessing a hardness up to 400 Brinell, exceptionally high tensile strength and conductivity, Cu Be 250 is non-magnetic and offers great resistance to fatigue. In the softened condition it is pliable and ductile and can be rolled or drawn to the finest limits. Absence of creep, its high fatigue strength and elastic limit make it ideal for all spring parts. Available as strip, wire and rod.

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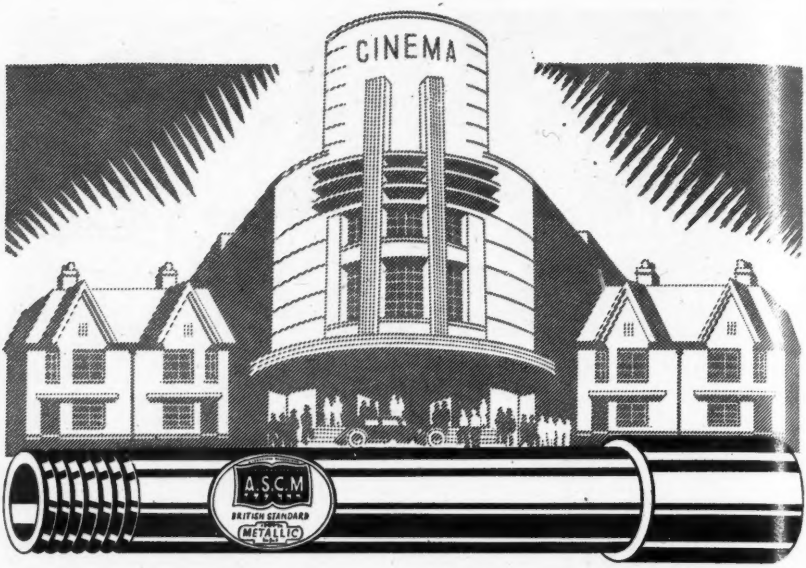

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HOW TO HAND IN YOUR RUBBER

1 WORN-OUT TYRES & TUBES. Take them to a local garage for dispatch to an Official Government Depot; if unable to do so, put them out for collection by the Local Authority.

2 ANY WASTE RUBBER. Put it out for collection by the Local Authority; or if you have a large amount for disposal you may sell it to a Merchant. If you don't know the nearest Merchant's address, write to **Rubber Control, (W.R.), Empire House, St. Martin's le Grand, London, E.C.1.**

3 If you accumulate more than one ton, you can obtain a *special collection* by getting in touch with the nearest Demolition and Recovery Officer. If you don't know his address, write to **The Ministry of Works and Buildings, Lambeth Bridge House, Albert Embankment, London, S.E.1.**

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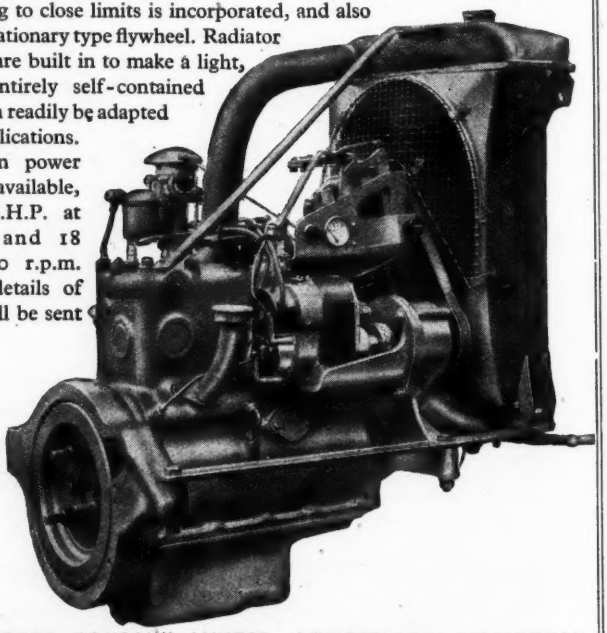

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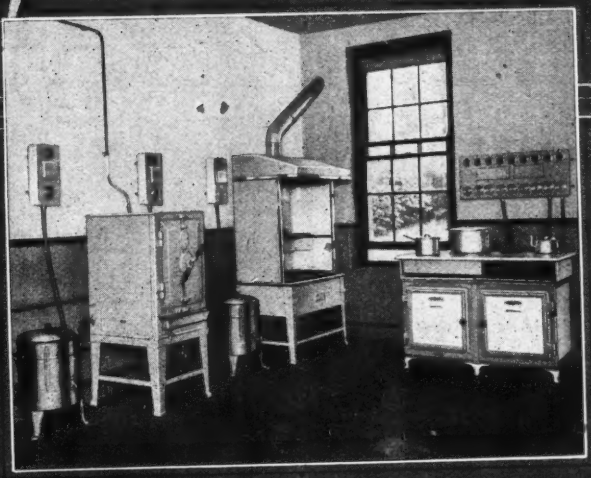

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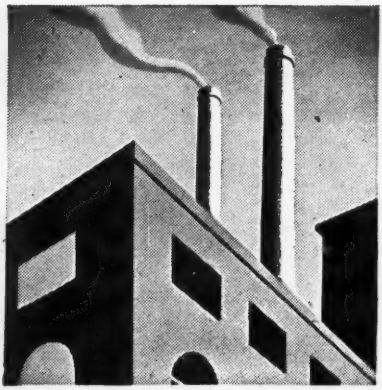

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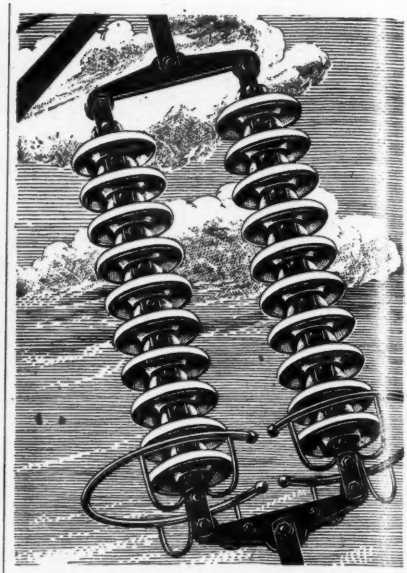

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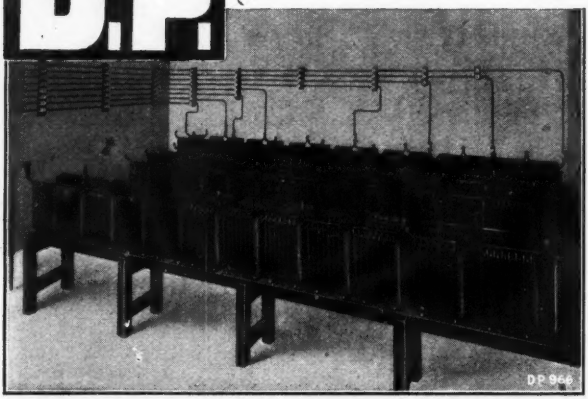

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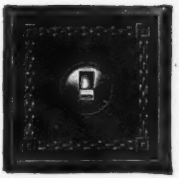

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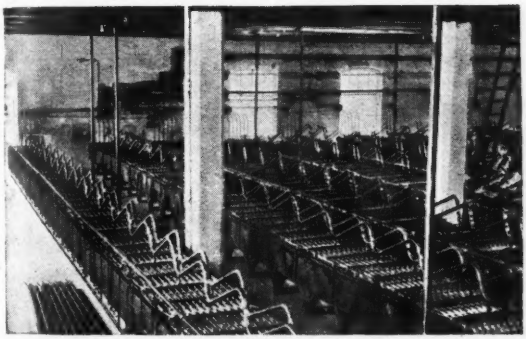

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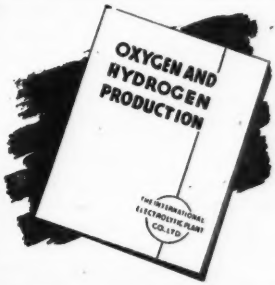

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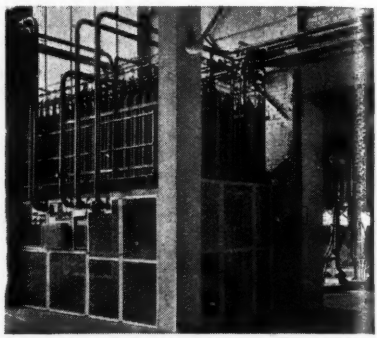
Pyrene TRADE MARK

CO_2 FIRE PROTECTION



Installations have been extensively adopted by Electricity supply undertakings and Industrial users. CO_2 gas is the ideal medium for Switch Houses, Substations and Transformer Chambers. Instantaneous in effect and cannot damage apparatus.

Further Details from Dept. E.R.

Pyrene TRADE MARK FIRE PROTECTION

THE PYRENE COMPANY LIMITED, GREAT WEST ROAD, BRENTFORD, MIDDLESEX.

MEKELITE

INDUSTRIAL

LIGHTING UNITS

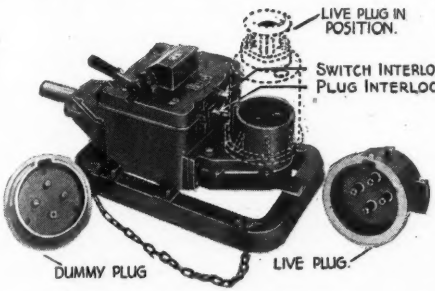
Two views of the same unit, closed and partly extended, to illustrate range of movement (scale 1/10 full size)

MEKELITE Industrial Lighting Units are available with various lengths of arms and pillar. Bases for wall, bench or machine mounting; for conduit or with rubber sleeve entry for cabtyre cable. Also heavy bases for portable use. Small reflectors for 12-volt lamps can be supplied.

MEK-ELEK Engineering Ltd., 17 Western Road, Mitcham, Surrey

Phone: MITcham 3072 Cables: Mekelek, London

WATERTIGHT PLUGS AND SOCKETS



Weekes' Type D.P. Watertight Plugs and Sockets are definitely designed for use in conjunction with cranes, hoists and movable electric plant, in exposed situations such as Docks, Quays, Railway Sidings, Shipyards, etc.

The accompanying illustration shows a Watertight Interlocked Plug Switch unit, to be mounted beneath the deck planking of a quay.

RATINGS :—Up to 400 amps., 500 volts, D.C. or A.C. Cable entries as required.

Your enquiries for the above and for Switchboards, Switchgear and Cartridge Fuses are invited.

L. WEEKES (LUTON) LIMITED

LUTON, BEDS.

London Office: 36-38 KINGSWAY, W.C.2

Telephones: Holborn 1091; Luton 278

Branches at BIRMINGHAM, GLASGOW, NEWCASTLE

From every point of view

- LABOUR....
- TIME.....
- EFFICIENCY..
- *and* COSTS..

While labour is scarce and time is so valuable, maintenance demands the use of only the best materials in paints and surface protection.

The qualities that should always, and particularly now, be insisted upon are:—

(1) The highest degree of rust inhibition for primers and undercoats.

(2) Permanence of colour in finishing coats.

Such factors will ensure lowest cost per year of efficient service, so that valuable labour, money and time are not wasted.

From every point of view "FOOCHOW" with many years' experience behind it will meet your requirements. The services of our technical staff are at your disposal on all painting problems.

Now—and in the future—specify

'Foochow'

PRIMERS, UNDERCOATS AND FINISHES

DONALD MACPHERSON & CO. LTD.

21 ALBION ST., MANCHESTER 1, & MITCHAM, LONDON

Phone: CENTRAL 5441/4 MITCHAM 2963/4

SLIPKNOT REG'D. INSULATING TAPES

Indispensable to every Electrical Engineer

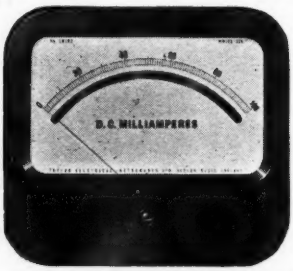
From all Electrical Wholesalers and Factors

Manufactured by:

ROTUNDA LIMITED

TAYLOR·METER

We manufacture five types of moving-coil meters from 2" to 5" in scale length



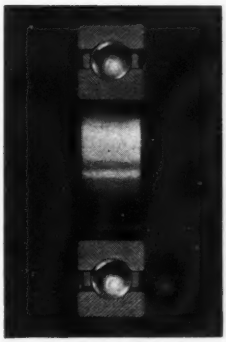
The illustration shows our Model 500. This has a scale length of 5" and can be supplied in any range from 0-100 Microamperes full scale up to 100 Amperes D.C. and, as self-contained Voltmeters, up to 1,000 volts. These can also be supplied as Rectifier type meters both as A.C. Ammeters and A.C. Voltmeters.

Write for full details.

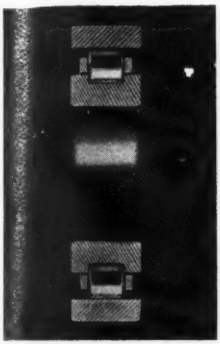
TAYLOR **Electrical Instruments Ltd. 419-422 Montrose Avenue, Slough, Bucks.**

Phone: Slough 21381

The foremost makers of
ELECTRICAL MACHINERY
have been constant users of



HOFFMANN
BALL AND ROLLER
BEARINGS



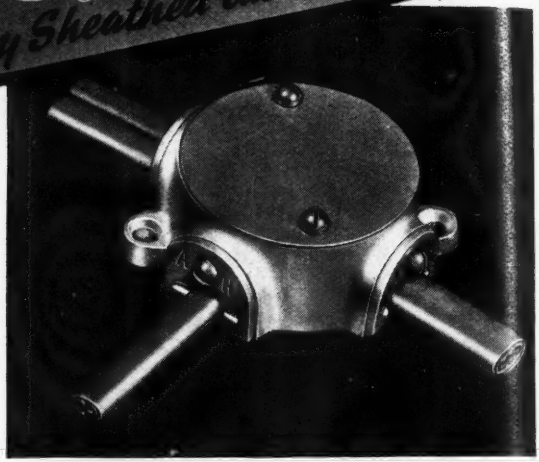
Because they give consistent satisfaction . . . The only reason that will endure

THE HOFFMANN MFG. CO. LTD., CHELMSFORD, ESSEX

DONLOK
Specify
DONOVAN
POWER PLUGS
★ For mechanical and Electrical Efficiency
★ Robust construction for knockabout use
★ Safety-first; foolproof "Interlock" principles
Made in a variety of types (including watertight patterns) to suit every industrial need.
Descriptive list on request
Descriptive List on request
RELY UPON
DONOVANS
The Donovan Electrical Co., Ltd. Birmingham 9
Telephone — STE. 2277 (P.B.X.)
Electrical Engineers and Stockholders
Grams—"Donovan, Birmingham"

G.E.C. JUNCTION BOXES

For Lead Alloy Sheathed Cables



This universal Cast Iron Junction Box has been specially designed for use with single core (circular) or twin core (flat) lead alloy sheathed cables, and has 2" fixing centres tapped 2 B.A.

The sizes that can be accommodated are shown under the various clamping pieces illustrated on the left.

Clamping Pieces

C.4727
Marked LM for one 3·029 or 3·036 triple L.A.S. Cable.

C.4729
Marked F for two 1·044 single L.A.S. Cable or two 3·029 ditto.

C.4729
Marked AH for one 1·044 twin L.A.S. Cable, one 3·029 ditto or one 3·036 ditto.

C.4729
Marked J for two twin L.A.S. Cable

For prices etc., apply for Leaflet No. C9238.

Each of these clamping pieces is secured by one fixing screw and contributes greatly to the following important features:—

- **Economy in cost.**
- **Simplified assembly.**
- **Assurance of positive pressure for earth continuity.**

NOTE. Blank pieces are provided for outlets not required.

C.4734
A separate terminal box C.4734 for accommodating 5 amp. semi-recessed switches and a similar box (C4737) for surface switches can also be supplied.

Advt. of The General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.

CLASSIFIED ADVERTISEMENTS

ADVERTISEMENTS for insertion in the following Friday's issue are accepted up to **First post on Monday,** at Dorset House, Stamford Street, London, S.E.1.

THE CHARGE for advertisements in this section is 2/- per line (approx. 8 words) per insertion, minimum 2 lines 4/-, or for display advertisements 30/- per inch, with a minimum of one inch. Where the advertisement includes a Box Number there is an additional charge of 6d. for postage of replies.

SITUATIONS WANTED.—Three insertions under this heading can be obtained for the price of two if ordered and prepaid with the first insertion.

REPLIES TO advertisements published under a Box Number if not to be delivered to any particular firm or individual should be accompanied by instructions to this effect, addressed to the Manager of the ELECTRICAL REVIEW. Letters of applicants in such cases cannot be returned to them. The name of an advertiser using a Box Number will not be disclosed. All replies to Box Numbers should be addressed to the Box Number in the advertisement, c/o ELECTRICAL REVIEW, Dorset House, Stamford Street, London, S.E.1. Cheques and Postal Orders should be made payable to ELECTRICAL REVIEW LTD. and crossed.

Original testimonials should not be sent with applications for employment.

OFFICIAL NOTICES TENDERS, ETC.

WEST MIDLANDS JOINT ELECTRICITY AUTHORITY

Contract No. 118

High Tension and Low Tension Cables for Substation

THE above-named Authority invite tenders from Cable Manufacturers for the supply, delivery, installation and testing of Standard Frequency H.T. and L.T. A.C. and L.T. D.C. Cables.

Copies of the conditions, specification and form of tender may be obtained on payment of one guinea, which will, after the Authority have come to a decision on the tenders received, be returned to the tenderer, provided he shall have sent in a bona fide tender and shall not have withdrawn it.

Additional copies can be obtained on a further payment of one guinea per copy, which sum will not be returnable.

Cheques should be made payable to "West Midlands Joint Electricity Authority."

Tenders must be forwarded in the envelope provided so as to reach the undersigned not later than noon on Monday, 13th July, 1942.

The Authority do not bind themseves to accept the lowest or any tender.

H. F. CARPENTER,
Clerk and Manager.

Central Offices of the Authority :—
Phœnix Buildings,
Dudley Road,
Wolverhampton.
24th June, 1942. 2191

NORMANTON URBAN DISTRICT COUNCIL

Electricity Department

THE Council invite tenders for the supply, delivery and laying of approximately 440 yards of E.H.T. cable, also the supply, delivery and fixing of one E.H.T. Switch Cubicle, complete with instruments.

Specifications and full particulars may be obtained from the Electrical Engineer, Electricity Department, High Street, Normanton, Yorks.

Tenders, in plain sealed envelopes endorsed "Tender for Cable and Switchgear," to be delivered to A. Hawkins, Esq., Clerk to the Council, Council Offices, Normanton, Yorks., not later than 11th July, 1942.

J. HOPTON,
Engineer.

Electricity Department,
High Street,
Normanton, Yorks. 2164

CITY OF PLYMOUTH ELECTRICITY SUPPLY DEPARTMENT

THE Plymouth Corporation invite tenders for the supply and delivery of one Portable Loading Conveyor.

Applications for Specification and Form of Tender should be addressed to the City Electrical Engineer, Armada Street, Plymouth.

Completed Tenders must reach the undersigned not later than Noon on Tuesday, 7th July, 1942.

COLIN CAMPBELL,
Town Clerk.

16th June, 1942. 2190

SITUATIONS VACANT

FIRST GARDEN CITY, LIMITED

Letchworth Electricity Undertaking

Appointment of Assistant Chief Electrical Engineer

APPLICATIONS are invited from suitable candidates for the above appointment. Salary £700 per annum, or according to qualifications. All-round experience necessary.

Particulars of the appointment can be obtained from the Company's Chief Electrical Engineer, Mr. Charles Gould, M.I.E.E., Electricity Works, Letchworth, on receipt of a stamped addressed envelope.

Applications must be forwarded so as to reach the Chief Electrical Engineer not later than 12 noon on Thursday, 2nd July, 1942.

J. D. RITCHIE,
Secretary and Manager.

Letchworth.
18th June, 1942. 2149

ASSISTANT required in buying department of electrical engineers in the London area. Must be used to dealing with raw materials, etc., and have knowledge of material licences. State age, experience and salary required and if exempt from military service.—Box 2166, c/o The Electrical Review.

ASSISTANT to Commercial Manager. Important manufacturing electrical engineers. Must be keen, energetic; accountancy and engineering knowledge necessary. Experienced in investigation, reorganisation and scientific office management. Write, giving full details of past experience and salary earned.—Box 2167, c/o The Electrical Review.

CLERICAL Assistant required in stores office. Must have a good knowledge of electrical material as handled by wholesalers. Apply—London Electrical Company, 92, Blackfriars Road, S.E.1. 2047

ELECTRICAL Engineer required, with wide and successful experience, estimating and supervising Government and private contracts for wiring and equipment of buildings. Appointment is superannuable and offers good prospects. Write, stating age, fullest particulars of experience and salary required, to—G. N. Haden & Sons, Ltd., 19/29, Woburn Place, London, W.C.1. 2169

GENTLEMAN required, over military age, used to estimating and supervising medium-size jobs, near city London. State age, experience and salary required. —Box 37, c/o The Electrical Review.

RUBBER Cable Manufacturers, North-Western area, require Order and/or Estimating Clerk, preferably male, exempt N.S. Reply stating age, experience and salary required.—Box 2185, c/o The Electrical Review.

SHIFT Electrical Supervisor, experienced in operation and maintenance of all types of heavy electrical switchgear, transformers, automatic control gear and, if possible, knowledge of large electrical arc furnaces and other electrical heating furnaces. Works engaged upon national work in South Wales. Salary £350/£400, depending upon experience. State full particulars and when available.—Box 2165, c/o The Electrical Review.

STOREKEEPER, experienced, required by electrical winding and repair works.—Southern Ignition Co., Ltd., 190, Thornton Road, Croydon. 7905

WANTED, experienced Manager-Foreman Contact Maker, good salary, permanent position with quick progress. All expenses paid for interview, etc.—W.D.C., 7, Back West Crescent, St. Annes-on-Sea. 2182

APPOINTMENTS FILLED

Dissatisfaction having been so often expressed that unsuccessful applicants are left in ignorance of the fact that the position applied for has been filled, may we suggest that Advertisers notify us to that effect when they have arrived at a decision. We will then insert a notice free of charge under this heading.

SITUATIONS WANTED

ELECTRICAL Engineer, 25, thorough knowledge of manufacture and design of motors, generators and prime movers, extensive knowledge as manager of large repair shop, also drawing office and sales experience, seeks administrative post. Exempt from services.—Box 7902, c/o The Electrical Review.

ELECTRICAL Engineer (28), B.Sc.(Eng.) and A.W.S. permit. Experience: Development, production and testing, universal instruments, switchgear, new and secondhand motors. Change of position desired.—Box 7898, c/o The Electrical Review.

MECHANICAL and Electrical Supervisor, age 46 yrs., O/H line and U/G cables, transmission and distribution, S/S and power house switchgear erection, also change over schemes, D.C./A.C. Complete installations supervised, free June 30th, 1942.—Box 7949, c/o The Electrical Review.

POSITION of trust required. Advertiser over 20 years with company of elec. contractors in managerial position, familiar with Government specifications and able to prepare estimates.—Box 7922, c/o The Electrical Review.

FOR SALE

COUNTY BOROUGH OF PRESTON

Electricity Undertaking

THE Council invite tenders for the purchase, dismantling and removal of the undermentioned plant from their Crown Street Works, Preston.

One 1,500-kW Rotary Converter Equipment, 6,600/440 volts, 50 periods, 600 r.p.m.; complete with transformers, starting pillars and D.C. switchgear, etc.

If desired, further details concerning the plant may be obtained upon application to the Borough Electrical Engineer, 40/41 Lune Street, Preston, and the plant may be inspected by previous appointment.

The successful tenderer will be required to remove the complete plant within a maximum period of 3 months from the date of acceptance of tender by the Council.

All tenders must be received by the undersigned, in a plain sealed envelope marked "Plant," not later than first post on Friday, 3rd July, 1942.

The Council does not bind itself to accept the highest or any tender.

H. E. NUTTER,
Town Clerk.

Municipal Building,
Preston, Lancashire. 2163

WEST MIDLANDS JOINT ELECTRICITY AUTHORITY

Contract No. 120

Plant for Disposal

THE above-named Authority invite offers for the purchase of three 3,000-kW Turbo-Alternators and two Boiler Plants, with auxiliaries.

Detailed particulars of the plant, conditions of sale, form of tender, and permit to view can be obtained on application.

Tenders must be forwarded in the envelope provided so as to reach the undersigned not later than noon on Friday, 17th July, 1942.

H. F. CARPENTER,
Clerk and Manager.

Central Offices of the Authority:—
Phœnix Buildings,
Dudley Road,
Wolverhampton.
24th June, 1942. 2192

GEORGE COHEN, SONS & CO., LTD.

SUPPLIERS OF SECONDHAND GUARANTEED ELECTRICAL PLANT.

SHOWROOMS AT: WOOD LANE, LONDON, W.12.

Telephone: Shepherds Bush 2070.

STANNINGLEY, NEAR LEEDS.

Telephone: Pudsey 2241. 1374

MOTOR GENERATOR SETS

BUILT to customers' requirements of available new and used plant, many in stock at Wembley—inspection invited. Please send us your enquiries—*we can help you to save time.*

OVER A THOUSAND MACHINES ALWAYS IN STOCK.

DYNAMO & MOTOR REPAIRS, LTD.,
Wembley Park, Middlesex.

Telephone: Wembley 3121 (4 lines).

Also at Rolfe Street, Smethwick, Staffs.

Telephone: Smethwick 0047. 2918

WATER TUBE BOILERS IN STOCK

One	35,000 lbs.	evaporation,	205 lbs.	W.P.	
Two	25,000	,, ,,	250	,,	,,
Two	12,000	,, ,,	200	,,	,,
One	12,000	,, ,,	160	,,	,,
One	5,000	,, ,,	100	,,	,,
One	4,000	,, ,,	160	,,	,,

We install complete, including brickwork. Economisers, Pumps, Piping Valves, Generating Sets and Motors in stock. Please send us your enquiries; we can give immediate delivery.

BURFORD, TAYLOR & CO. LTD.
Boiler Specialists, Middlesbrough.
Telephone, Middlesbrough 2622. 2041

A.C. ELECTRIC MOTORS

400 v., 3-ph., 50 cycles.

200	h.p.	485 revs.,	S.R.,	Mather & Platt,	3	bearing type.
100	,,	490 ,,	,,	,,	3	,, ,,
100	,,	585 ,,	,,	Brush Elec. Co.,	2	,, ,,

All complete with Ellison Starting Gear.

GREENHALGH BROS.,
Burton's Field Mill, Atherton. Phone 117. 2042

MOTOR Generator Set by METROPOLITAN-VICKERS. Motor, 112 H.P., 3-phase, 50 cycles, 400 volts. Generator, 75 kW, 220 volts.

Motor Generator Set by CROMPTON PARKINSON, with 20-H.P., 400/440-volts, 3-phase, 50-cycles, 950-r.p.m. Slip-ring Motor coupled to 11-kW, 110-volts Generator. Ball bearings throughout.

NEWMAN INDUSTRIES, LTD.,
YATE, BRISTOL. 2140

FIRST GARDEN CITY, LIMITED

THE following Switchboard is for disposal at Letchworth, Herts., and may be inspected at the Electricity Works Works Road, by appointment :—

Eleven-panel, 3,300-volt, 3-phase, 50-cycle, Truck-type Switchboard. Oil Circuit-breakers, ranging from 300 to 1,500 amperes, complete with various instruments, Duplicate Busbars and Double Throw Isolating Links, all of Johnson & Phillips' manufacture.

Offers to be submitted as early as possible to the undersigned :—

CHARLES GOULD, M.I.E.E.,
Chief Electrical Engineer.
2161

ELECTRIC MOTORS & DYNAMOS

WE hold one of the largest stocks of New and Secondhand Motors. Secondhand machines are thoroughly overhauled. Inspection and tests can be made at our Works.

For Sale or Hire. Send your enquiries to :—

BRITANNIA MANUFACTURING CO., LTD.,
22-23 BRITANNIA STREET,
CITY ROAD, LONDON, N.1.

Telephone : 5512-3 Clerkenwell. 13

A.C. ELECTRIC MOTORS

400 v., 3-ph., 50 cycles.

200 h.p., 485 revs., S.R., Mather & Platt, 3 bearing type.
100 .. 490 .. .. 3 .. ..
100 .. 585 .. .. Brush Elec. Co., 2 .. ..

All complete with Ellison Starting Gear.

GREENHALGH BROS.,
Burton's Field Mill, Atherton. Phone 117.
2173

MOTOR GENERATOR SETS FOR DISPOSAL

50-kW, 220-volt ELECTROMOTORS Set with 90-H.P., 400-volt A.C. slip-ring motor, with starting gear and switchboard.

40-kW, 110-volt CROMPTON Set with 500-volt D.C. driving motor.

NEWMAN INDUSTRIES, LIMITED,
YATE, BRISTOL.
2184

A number of Automatic Kohler Sets, 1,500 watts, 110 volts, completely overhauled, ready from stock.—J. Gerber & Co., Ltd., Wembley. 2178

A Semi-portable Petrol Welding Set, 220 amps., 80/100 volts, shop soiled, unused. "Bargain."—Box 2176, c/o The Electrical Review.

A.C. and D.C. House Service Meters, all sizes, quarterly and prepayment, reconditioned, guaranteed one year. Repairs and recalibrations.—The Victa Electrical Co., 47, Battersea High Street, S.W.11. Tel. Battersea 0780. 840

A.C. and D.C. Motors, all sizes, large stocks, fully guaranteed.—Milo Engineering Works, Milo Road, East Dulwich, S.E.22 (Forest Hill 4422). 7833

AERIAL Cables, all sizes quoted for; good deliveries against Government contract numbers.—Edwardes Bros., 20, Blackfriars Road, London, S.E.1. 7939

ALTERNATING Diesel Set, 50 kVA, 400/3/50, 1,000 revs., on bed, radiator cool., overhauled.—Box 2175, c/o The Electrical Review.

BEST English Cables, all standard sizes 1/.044 up to 127/.103, good deliveries against Government contract number.—Edwardes Bros., 20, Blackfriars Road, London, S.E.1. 7940

BRAND new Alternators, 440/3/50, 4-wire, 1,000 revs., with exciters, 50-60-80-100 kVA, for quick delivery.—J. Gerber & Co., Ltd., Wembley, Middlesex. 2177

CONDUIT and Conduit Fittings. For prompt delivery, phone—Piggott, Sydenham 5035. 2050

CROSSLEY Gas Engines, one 48 H.P., one 60 H.P., complete, in first-class running order, £100 and £120 respectively, before removal. Lying Birmingham.—Norman E. Potts, 105, Alcester Road South, B'ham, 14. 2170

D.C. Electric Motors, all compound wound, 36 H.P., 440 volts, 930 r.p.m.; 50 H.P., 410 volts, 800 r.p.m.; 50 H.P., 220 volts, 450 r.p.m.; 38 H.P., 220 volts, 350 r.p.m. Low prices for quick sale.—Norman Potts, 105, Alcester Road South, B'ham, 14. 2171

FLEXIBLE Cords and Cables of all sizes and types supplied from stock. State requirements.—Box 7904, c/o The Electrical Review.

FOR Sale, Dynamo, 105 kW, 220 v., 560 r.p.m., Crompton; also Motor, 80 H.P., 480 v., 360 r.p.m., L.D.M.—Fyfe, Wilson & Co., Ltd., Bishop's Stortford. 2187

FOR Sale, one four-compartment Sun-ray Tricity electric cooker, 100 volts, 100 amps., suitable for canteen.—Box 15, c/o The Electrical Review.

FOR Sale, Standby Generating Sets, including 55-kW, 440/3/50, A.C. Ricardo petrol.—Fyfe, Wilson & Co., Ltd., Bishop's Stortford. 2186

FOR Sale, Transformer, 3-phase, by Brush Electrical, 11,000/5,500 volts H.T., 400 volts L.T., 300/150 kVA, 50/25 cycles. Serial No. 225/5. Also Oil-cooled Transformer by G.E.C., 150 kVA, 10,750/400 volts. Full details.—Box 2141, c/o The Electrical Review.

FOR Sale, 480-volt D.C., 10-amp. Dynamo. Makers, Messrs. Higgs Bros., Birmingham. For further particulars apply to the Public Assistance Officer, County Hall, Lewes. 2162

LARGE quantity single-core C.T.S. Flexible, braided finish, carry 24 amps., cheap.—Edwardes Bros., 20, Blackfriars Road, London, S.E.1. 7941

LARGE quantity 10-amp. D.P. ironclad D. & S. Fuses, extra cheap.—Edwardes Bros., 20, Blackfriars Road, London, S.E.1. 7942

LARGE quantity 16mm. and 11mm. solid and cored Arc Lamp Carbons, cheap.—Edwardes Bros., 20, Blackfriars Road, London, S.E.1. 7943

LEAD-covered and Armoured Cables, P.I. and V.I.R. various special lines at low prices.—Edwardes Bros., 20, Blackfriars Road, London, S.E.1. 7944

LINESMEN'S Detectors, G.P.O. pattern, unused, cheap.—Edwardes Bros., 20, Blackfriars Road, London, S.E.1. 7945

MONOMARK. Permanent conf. London address. Letters redirected. 5s. p.a. Write—BM/MONO53, W.C.1. 2073

MOTOR Generator Sets and Convertors, all sizes and voltages from ½ kW up to 500 kW in stock.—Britannia Manufacturing Co., Ltd., 22/26, Britannia Walk, City Road, London, N.1. Telephone, Clerkenwell 5512, 5513 and 5514. 1903

NAMEPLATES, Engraving, Diesinking, Stencils, Steel punches.—Stilwell & Sons, Ltd., 153, Far Gosford Street, Coventry. 14

NEW A.C. Motors in stock, all sizes from ¼ h.p. to 50 h.p. Delivery immediately.—Box 2168, c/o The Electrical Review.

NEWMAN Industries, Ltd., Yate, Bristol, for electrical plant of all kinds. Newman Industries, Ltd., Yate, Bristol, for electrical plant of all kinds. Newman Industries, Ltd., Yate, Bristol. Tel. Chipping Sodbury 111. 1511

PORCELAIN Insulators and Spindles, also Cleats, cheap.—Edwardes Bros., 20, Blackfriars Road, London, S.E.1. 7946

QUANTITY Red Fibre Blocks, 8" × 8" × 13/16" thick, cheap.—Edwardes Bros., 20, Blackfriars Road, London, S.E.1. 7947

ROTARY Converter, 125 kW, "L.D.M.," 6,000 v. A.C./230 v. D.C., 1,000 revs., with Switchgear.—Greenhalgh Bros., Burton's Field Mill, Atherton, M/cr. 2045

ROTARY Converters in stock, all sizes; enquiries invited.—Universal Electrical, 221, City Road, London, E.C.1. 16

SEARCHLIGHTS (sale or hire), Instrument and Resistance Wires, T.R.S. and other Cables, surplus Lamp Bulbs, Carbon Rods, Ebonite, Fibre, Erinoid, Porcelain House-wiring and other Cleats, Reels and Knobs, Mirrors, Lenses, etc.—London Electric Firm, Croydon. 2174

SPECIAL Offer, 37/.064 Twin C.T.S. Cable, 300-yard lengths; also quantity 7/.044 and 7/.064 single ditto.—Edwardes Bros., 20, Blackfriars Road, London, S.E.1. 7948

STAFF Time Checking and Job Costing Time Recorders (all makes) for quick cash sale. Exceptional condition. Write—Box 528, Smiths', 100, Fleet Street, London, E.C.4. 2004

TWO New Allen West Direct-on Starters, type S.C.1, 3-ph., A.C., ¼ h.p., £7 ea. Also 20 gross new black beautifully-finished Pointer Knobs, ¾" bore, 4s. doz. 50,000 Coppered Steel Springs, int. dia. 5/16", length 1¾". —Kaye, 41, St. Anns Road, Harrow. 7936

TWO oil-cooled Transformers, 10 kVA, 500 v./20 amp., 80,000/.125. Three 10 kVA, 100,000/1 amp., 440/24.5, single-phase, 50 cycle.—Box 2172, c/o The Electrical Review.

5 tons of new condition V.I.R. Cable, 153/.072, 50-ft. lengths, 600 amp. 400-kW "Allen" Turbo-Generating Set, 220/250 volt D.C. 250-kW Motor Generating Set, input 6,600/3/50, output 440/550 volt D.C.—Stewart Thomson & Sons, Fort Road, Seaforth, Liverpool, 21. 842

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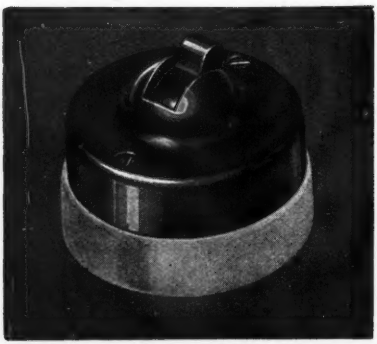

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COMPANY MEETING

BRITISH ELECTRIC TRACTION

Continued Progress

THE 46th ordinary general meeting of The British Electric Traction Company, Limited, was held on June 19th in London.

Mr. Richard J. Howley, C.B.E., the chairman, said that the gross revenue amounted to £767,588, which again constituted a record and represented an increase of £19,036 over the previous year. The profit for the year was £527,393, a reduction of £4,431, which was more than accounted for by the increased charge for taxation.

The shareholders of Tilling & British Automobile Traction, Ltd., had received a circular letter from the secretary of that company regarding a scheme for reconstruction and for the transfer of the assets to two companies to be formed. The activities of the provincial omnibus companies had grown very considerably in recent years, and the directors of the parent companies had come to the conclusion that greater efficiency would be obtained if the business of Tilling & British Automobile Traction, Ltd., was divided into two parts and direct administration of each part was substituted for joint administration of the whole. The proposals provided for the formation of two companies, namely, B.E.T. Omnibus Services, Ltd., and Tilling Motor Services, Ltd.; the former would be controlled by the British Electric Traction Co., Ltd., and the latter by Thomas Tilling, Ltd.

Each company, when the scheme was completed, would have acquired the whole of Tilling & British Automobile Traction, Ltd.'s holdings of Ordinary shares in approximately one-half of the omnibus companies in that company's group, together with—as nearly as might be—one-half of the remaining assets of that company. Tilling & British Automobile Traction, Ltd., would be liquidated and shareholders would receive for each share of £1 two 10s. shares of the same category—one in each of the two new companies. Thus, the combined holdings of each shareholder in the two companies would correspond in total to the same nominal amount as his present holding and be of corresponding class or classes, and his new holdings would represent the same proportion of the total assets as at present.

SUCCESS OF GROUP CONTROL

As might be expected, the road transport and electricity supply companies in which they were so largely interested had been busily engaged. Their organisation had proved its usefulness under present difficult conditions and had shown that group control of locally-managed public utility undertakings under skilled direction was probably the most efficient and cheapest way of providing such services.

It might be that the setting up of public boards, as had been suggested, to operate transport and public services, was the answer to the desire of some leading politicians to nationalise services of that kind. It might be a way out of the danger which they appreciated would arise to our public economy under nationalisation. He was not convinced that large, unwieldy boards would be either efficient or desirable in the national interest.

The report was adopted. 2183

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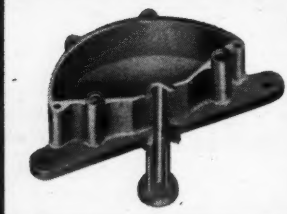

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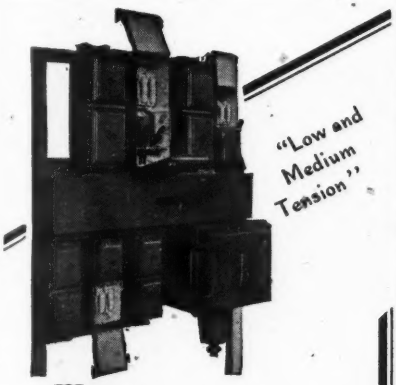

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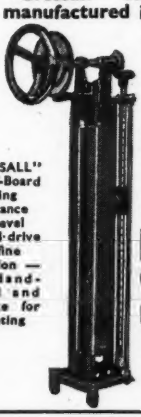

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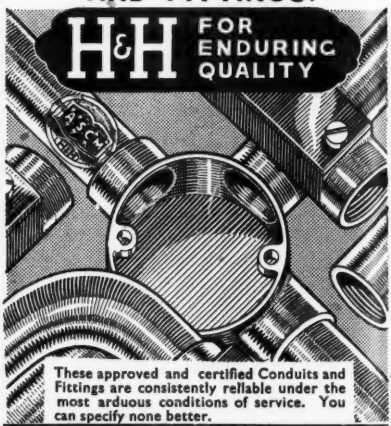

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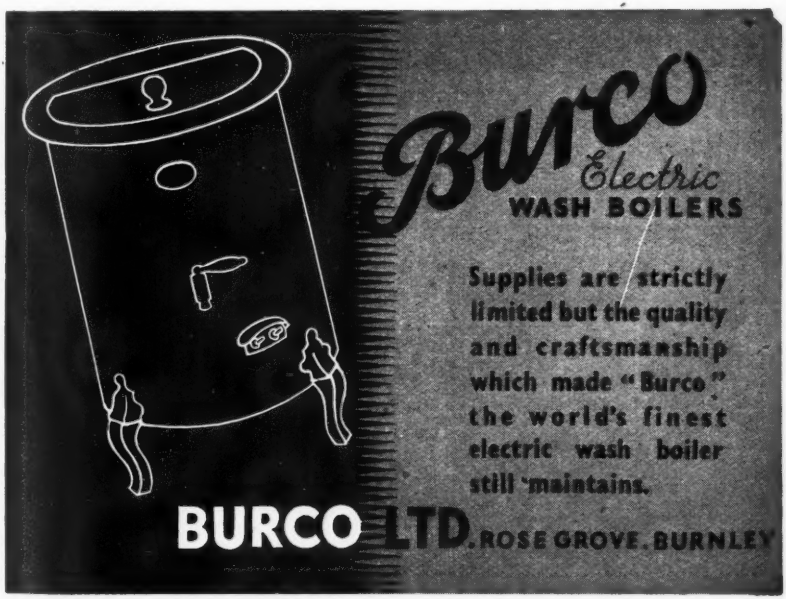
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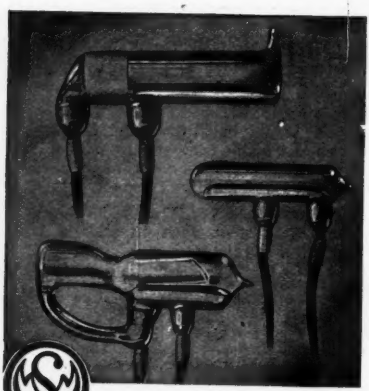

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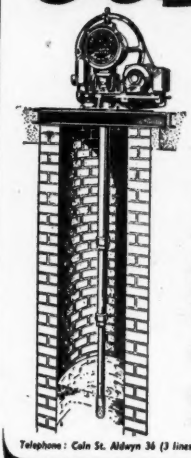

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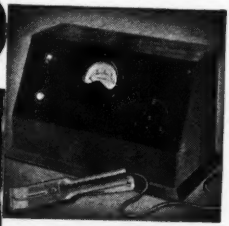

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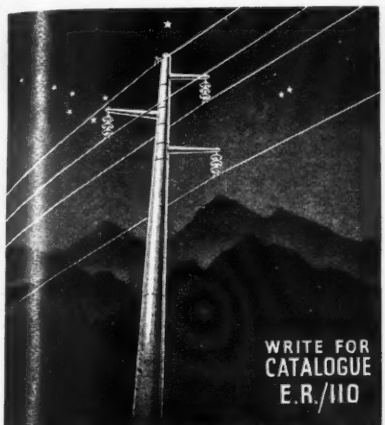

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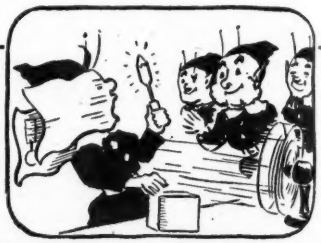

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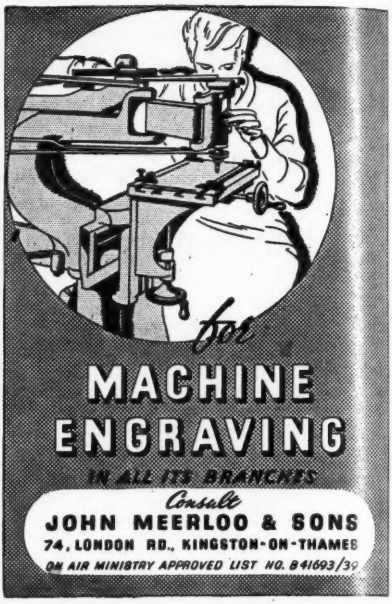

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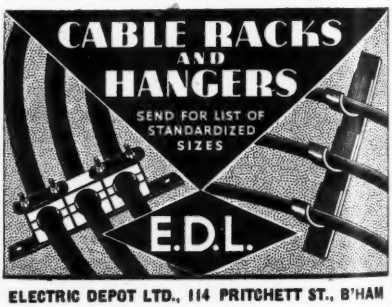

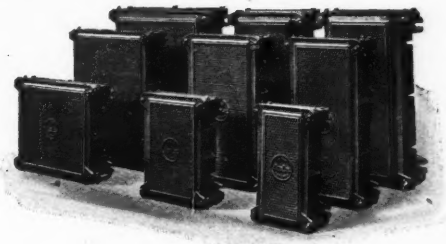

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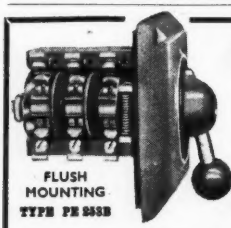

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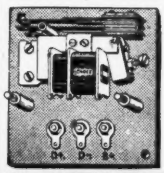

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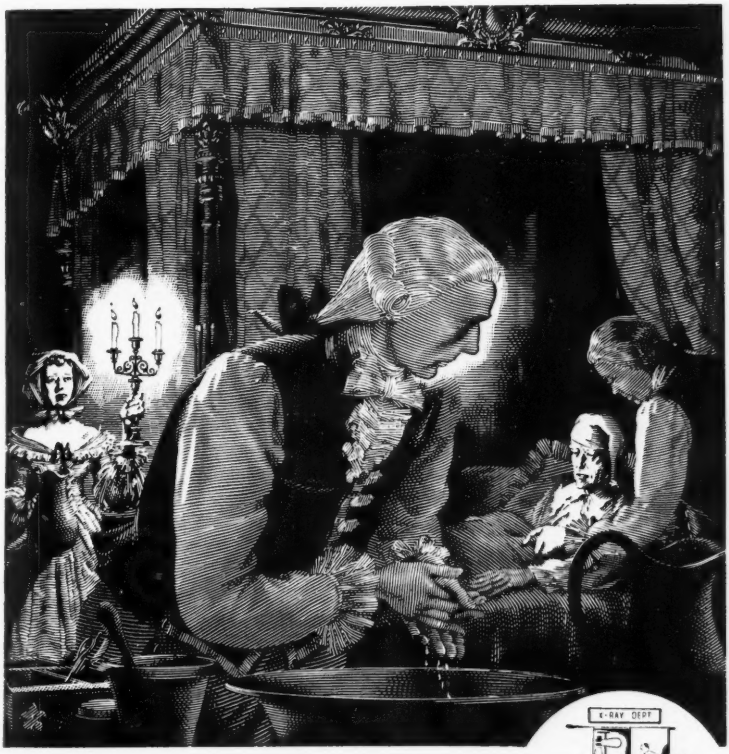

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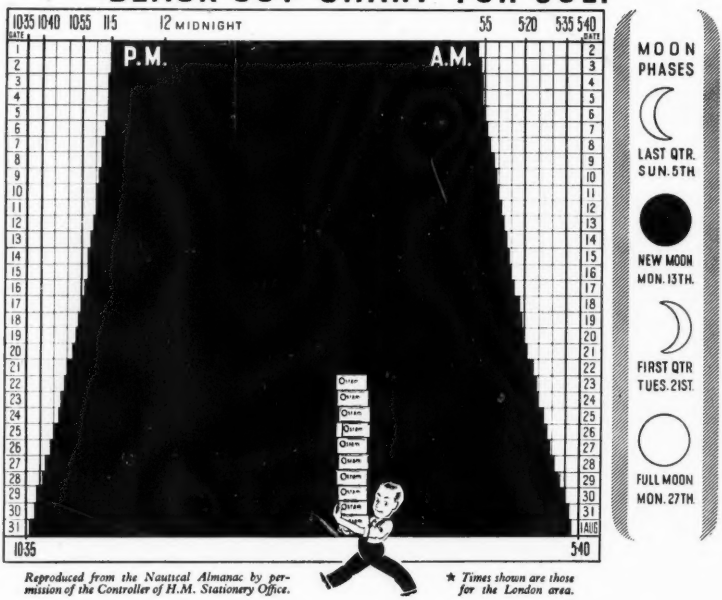

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★ *Times shown are those for the London area.*

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